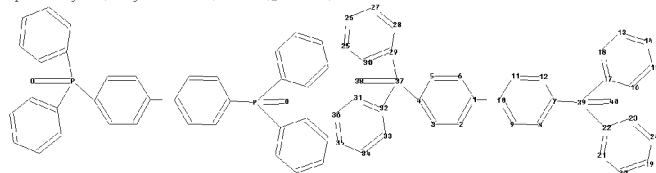


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24 25 26 27 28 29 30 31 32 33 34 35 36  
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ring bonds :  
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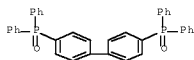
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L3 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2009:1537396 CAPLUS Full-text  
DOCUMENT NUMBER: 152:85763  
TITLE: Phosphine Oxide Derivatives as Hosts for Blue Phosphors: A Joint Theoretical and Experimental Study of Their Electronic Structure  
AUTHOR(S): Kim, Dongwook; Salman, Seyhan; Coropceanu, Veaceslav; Salomon, Eric; Padmaperuma, Asanga B.; Sapochak, Linda S.; Kahn, Antoine; Bredas, Jean-Luc  
CORPORATE SOURCE: Sch. Chem. Biochem. & Cent. Org. Photonics Electronics, Georgia Inst. Technol., Atlanta, GA, 30332-0400, USA  
SOURCE: Chemistry of Materials (2010), 22(1), 247-254  
CODEN: CMATEX; ISSN: 0897-4756  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A joint theor. and exptl. study is reported of the electronic structure of bis(diphenylphosphine oxide) derivs. containing a central aromatic core with high triplet energy. Such mol.s. can serve as host material in the emissive layer of blue electro-phosphorescent organic devices. The aromatic cores considered in the theor. study consist of biphenyl, fluorene, dibenzofuran, dibenzothiophene, dibenzothiophenesulfone, or carbazole, linked to the 2 phosphoryl groups in either para or meta positions. With respect to the isolated core mol.s., addition of the diphenylphosphine oxide moieties has hardly any impact on the core geometry and only slightly reduces the energy of the lowest triplet state (by, at most, approx.0.2 eV). The diphenylphosphine oxide functionalities significantly impact the ionization potential and electron affinity values, in a way that is different for para and meta substitutions. Excellent comparison is obtained between the exptl. UPS and IPES spectra of the para biphenyl and meta dibenzothiophene and dibenzothiophenesulfone compds. and the simulated spectra. In general, the phosphine oxide derivs. present triplet energies that are 20.2 eV higher than those of currently widely used blue phosphorescent emitters.  
IT 4129-45-7, 4,4'-Bis(diphenylphosphoryl)-1,1'-biphenyl  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(electronic structure of blue phosphor host)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)

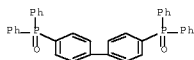


REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

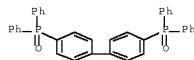
L3 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2009:947351 CAPLUS Full-text  
DOCUMENT NUMBER: 151:256724  
TITLE: Organic electroluminescence components at high luminous efficiency and durability and fabrication of electroluminescence components thereof  
INVENTOR(S): Igarashi, Takeshi  
PATENT ASSIGNEE(S): Showa Denko K. K., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 37pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2009176963	A	20090806	JP 2008-14225	20080124
JP 2008-14225			JP 2008-14225	20080124

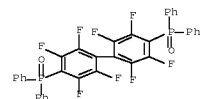
PRIORITY APPLN. INFO.:  
AB The title organic electroluminescence element is signified in a polymerizable amine-polymerizable fluorescent compound copolymer which is a simultaneous hole-transport/luminescent layer, preferably addnl. containing electron-transport compds., wherein the polymerizable amine has 22 polymerizable functional groups R4-[O]n-[O]m-ni-O[X]n2- [R4 = R5R6C=CHCH2-, R7C=CH-, X1 = organic group derived from C2-30 polyhydric alc. having 2-6 hydrocarbyl groups; Y1 = -COCH3CHCO-; X2 = Cl-4 alkylene; n1 = 1-10 int.; n2 = 0-1 int.; v = 0-4 int.]. the electroluminescence component may preferably be a lamination successively with an anode, a hole-transport/luminescent layer, an electron-transport layer, and a cathode. the arrangement gives the organic electroluminescence elements excellent luminous efficiency and durability.  
IT 4129-45-7  
RL: PRPH (Prophetic)  
(organic electroluminescence components at high luminous efficiency and durability and fabrication of electroluminescence components thereof)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



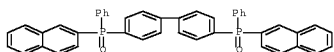
L3 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2009:132412 CAPLUS Full-text  
DOCUMENT NUMBER: 150:385330  
TITLE: Molecular building blocks for efficient solid state lighting  
AUTHOR(S): Burrows, P. E.; Sapochak, L. S.; Padmaperuma, A. B.; Qiao, H.; Vecchi, F.  
CORPORATE SOURCE: Energy Science and Technology Directorate, Pacific Northwest National Laboratory, Richland, WA, 99352, USA  
SOURCE: NSTI Nanotech 2007, Nanotechnology Conference and Trade Show, Santa Clara, CA, United States, May 20-24, 2007 (2007), Volume 4, 708-711. Editor(s): Laudon, Matthew; Romanowicz, Bart. CRC Press: Boca Raton, Fla.  
CODEN: 69LJAH; ISBN: 1-4200-6342-1  
DOCUMENT TYPE: Conference  
LANGUAGE: English  
AB General illumination consumes 22% of the electricity generated in the U.S. This huge proportion is partly due to the ubiquity of artificial lighting but also the inefficiency of converting elec. energy to light. Incandescent lightbulbs convert a mere 5% of the supplied power into light (most of the rest emerging as heat) whereas the more efficient fluorescent bulbs achieve about 20% efficiency. Improving the efficiency of these light sources is difficult since in all cases the emission of light is essentially a byproduct of an energetic excitation process. In contrast, solid state lighting utilizes materials which directly convert elec. energy to light with little production of heat and therefore have the potential for far higher efficiency, with over 70% demonstrated in the IR. New materials based on direct bandgap semiconductors and organic light emitters may permit this level of efficiency for general lighting. In both cases, however, understanding the nanoscale structure of the material is critical to achieving high efficiency. This is particularly evident in the case of organic mol. compds., where weak inter-mol. interactions can permit the photophys. properties of a solid to be tuned by changing the chemical structure of the mol. building block.  
IT 4129-45-7 835984-20-8 1135378-21-8  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
(mol. building blocks for efficient solid state lighting)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



RN 935984-80-8 CAPLUS  
CN Phosphine oxide, 1,1'-[2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl]bis[1,1-diphenyl]- (CA INDEX NAME)



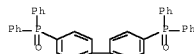
RN 1135398-21-8 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1-(2-naphthalenyl)-1-phenyl]- (CA INDEX NAME)



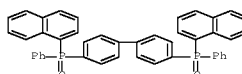
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:148708 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 146:489606  
TITLE: Design strategies for achieving high triplet energy electron transporting host materials for blue electrophosphorescence  
AUTHOR(S): Sapochak, Linda S.; Padmaperuma, Asanga B.; Vecchi, Paul A.; Qiao, Hong; Burrows, Paul E.  
CORPORATE SOURCE: Materials Division, Energy, Science and Technology Directorate, Pacific Northwest National Lab., Richland, WA, 99352, USA  
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2006), 6333 (Organic Light Emitting Materials and Devices X), 63330F/1-63330F/13 CODEN: FISDGG; ISSN: 0277-786X  
PUBLISHER: SPIE-The International Society for Optical Engineering  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB High efficiency small mol. organic light emitting devices (OLEDs) based on light emission from an electrophosphorescent dopant dispersed in an organic host matrix are known. Achieving blue phosphorescent OLEDs is particularly challenging because the host triplet energy should ideally be > 2.8 eV to prevent back-transfer of energy from the dopant to the host matrix resulting in loss of efficiency. A design strategy for developing new host materials with high triplet energies by using phosphine oxide (P=O) moieties as points of saturation to build sublimable, electron transporting host materials starting from small, wide bandgap mol. building blocks (i.e., biphenyl, Ph, naphthalene, octafluorobiphenyl, and N-ethylcarbazole) is described. Electrophosphorescent OLEDs using the organic phosphine oxide compds as host materials for the sky blue organometallic phosphor, Ir(III)bis(4,6-di-fluorophenyl)-pyridinato-N,C(2)) picolinate (FIrpic) give maximum external

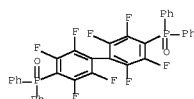
quantum efficiencies of .apprx.8% and maximum luminance power efficiencies up to 25 lm/W.  
IT 4129-45-7, 4,4'-Bis(diphenylphosphine oxide)biphenyl  
93520-80-8 93524-80-8  
RL: FRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(high triplet energy electron transporting host materials for blue electrophosphorescence)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



RN 868520-27-8 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1-(1-naphthalenyl)-1-phenyl]- (CA INDEX NAME)



RN 935984-80-8 CAPLUS  
CN Phosphine oxide, 1,1'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[1,1-diphenyl]- (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:1251631 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 146:35702  
TITLE: Light-emitting device containing bis-phosphine-oxide compound

INVENTOR(S): Ren, Xiaofan; Giesen, David S.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 17pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060269784	A1	20061130	US 2005-141092	20050531
US 7419728	B2	20080902		
WO 2006130353	A2	20061207	WO 2006-US19300	20060517
WO 2006130353	A3	20070125		

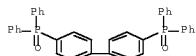
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PRIORITY APPLN. INFO.: US 2005-141092 A 20050531  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 146:35702

AB Organic light-emitting devices (OLEDs) are described which comprise an anode and a cathode and having in-between a light emitting layer containing an emissive material, wherein a layer between the anode and cathode contains a phosphine-oxide compound bearing two or more tri(hetero)arylphosphineoxide groups, provided these groups are selected to give a compound with a triplet state energy Et>2.65 eV.

IT 4129-45-7  
RL: FRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(light-emitting device containing bis-phosphineoxide compound)

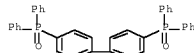
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:476929 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 145:155574

TITLE: Ultraviolet electroluminescence and blue-green phosphorescence using an organic diphosphine oxide charge transporting layer  
AUTHOR(S): Burrows, P. E.; Padmaperuma, A. B.; Sapochak, L. S.; Djurovich, P.; Thompson, M. E.  
CORPORATE SOURCE: Energy Science and Technology Directorate, Pacific Northwest National Laboratory, Richland, WA, 99352, USA  
SOURCE: Applied Physics Letters (2006), 88(18), 183503/1-183503/3  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The authors report electroluminescence at 338 nm from a simple bilayer organic light-emitting device (OLED) made using 4,4'-bis(diphenylphosphine oxide) biphenyl (FOI). In an OLED geometry, the material is preferentially electron transporting. Doping the FOI layer with Ir(III)bis(4,6-di-fluorophenyl)-pyridinato-N,C(2')picolinate (FIrpic) gives rise to electrophosphorescence with a peak external quantum efficiency of 7.8% at 0.09 mA/cm<sup>2</sup> and 5.9% at 13 mA/cm<sup>2</sup>. The latter c.d. is obtained at 6.3 V applied forward bias.  
IT 4129-45-7, 4,4'-Bis(diphenylphosphine oxide) biphenyl  
RL: DEV (Device component use); FRP (Properties); USES (Uses)  
(UV electroluminescence and blue-green phosphorescence using organic diphosphine oxide charge transporting layer)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1170949 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 143:449039  
TITLE: Organic compound containing phosphorus used in organic electroluminescent device and its preparation  
INVENTOR(S): Goto, Yasuyuki; Noto, Mitsuharu; Hayashida, Tsuyoshi; Era, Masanao  
PATENT ASSIGNEE(S): Kyushu Electric Power Co., Inc., Japan; Daiden Co., Ltd.  
SOURCE: PCT Int. Appl., 83 pp.  
CODEN: FIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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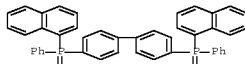
WO 2005104628 A1 20051103 WO 2005-JP7551 20050420  
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NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,  
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EP 1744598 A1 20070117 EP 2005-734415 20050420  
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CN 1951156 A 20070418 CN 2005-80011649 20050420  
CN 100512586 C 20090708  
KR 2007015545 A 20070205 KR 2006-721477 20061017  
US 20070290605 A1 20071220 US 2007-599334 20070628  
JP 2004-124712 A 20040420  
WO 2005-JP7551 W 20050420

PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 143:449039

AB The invention relates to an organic electroluminescent device provided with a plurality of organic compound layers sandwiched between an anode and a cathode. The organic electroluminescent device is provided with a hole transporting layer composed of an organic compound insol. in alc. solvents, and an electron transporting layer formed on the hole transporting layer by a wet method. The material of the electron transporting layer is an organic compound which contains phosphorus and soluble in alc. solvents. A method for manufacturing the organic electroluminescent element, the organic compound containing phosphorus and a method for manufacturing such compound are also provided.

IT 868520-27-8  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(organic compound containing phosphorus used in organic electroluminescent device and its preparation)

RN 868520-27-8 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1-(1-naphthalenyl)-1-phenyl]- (CA INDEX NAME)



IT 4129-45-7 868520-18-7 868520-27-8  
RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(organic compound containing phosphorus used in organic electroluminescent device and its preparation)

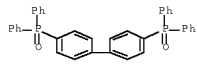
ACCESSION NUMBER: 2005:732727 CAPLUS Full-text  
DOCUMENT NUMBER: 143:219214  
TITLE: Organic materials with tunable electric and electroluminescent properties  
INVENTOR(S): Sapochak, Linda Susan; Burrows, Paul Edward; Padmaperuma, Asanga Bimalchandra; Desilva, Marukkuwadura Aruni; Bennett, Byron Lee  
PATENT ASSIGNEE(S): Battelle Memorial Institute, USA; University of Nevada Las Vegas  
SOURCE: PCT Int. Appl., 38 pp.  
DOCUMENT TYPE: CODEN: PIXXD2  
LANGUAGE: Patent  
FAMILY ACC. NUM. COUNT: 1 English  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005073340	A1	20050811	WO 2005-US1779	20050121
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EP 1706470	A1	20061004	EP 2005-722477	20050121
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS			
CN 1981015	A	20070613	CN 2005-80009589	20050121
JP 2007524672	T	20070830	JP 2006-551256	20050121
KR 2007004641	A	20070109	KR 2006-716925	20060823

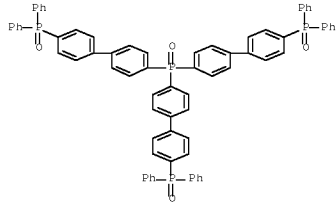
PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
AB Materials are described which comprise 21 phosphine oxide moieties, each of which is further bonded by single bonds to 22 outer groups, the material configured as part of a circuit. The circuit may be a photodetector, solar cell, thin-film transistor, or bipolar transistor, or a circuit incorporated in an array to form an information display. Organic light-emitting devices having an anode layer, a cathode layer, and 21 organic layer interposed between the anode and cathode layer are also described in which 21 of the organic layers comprises a material having 22 phosphine oxide moieties joined by a bridging group, wherein each of the phosphine moieties is further bonded by single bonds to 2 outer groups. By selecting appropriate bridging and outer groups, the elec. and electroluminescent characteristics of the materials can be adjusted. The phosphine oxide moiety restricts electron conjugation between the bridging and outer groups, isolating the bridging and outer groups from each other, and allowing the photophys. properties of the bridging and outer groups to be maintained in the mol. The lowest energy component (bridging group or particular outer group) thus defines the triplet state, HOMO and lowest unoccupied mol. energies for the entire mol.

IT 4129-45-7 868520-18-7 868520-27-8

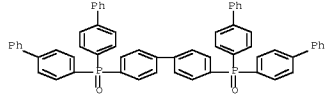
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



RN 868520-18-7 CAPLUS  
CN Phosphine oxide, tris[4'-(diphenylphosphinyl)[1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)



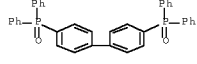
RN 868520-25-6 CAPLUS  
CN Phosphine oxide, bis([1,1'-biphenyl]-4-yl)[4'-[bis([1,1'-biphenyl]-4-yl)phosphinyl][1,1'-biphenyl]-4-yl]- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STN

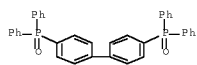
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(organic materials with phosphine oxide moieties and devices using them)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



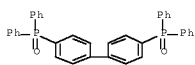
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1970:30819 CAPLUS Full-text  
DOCUMENT NUMBER: 72:30819  
ORIGINAL REFERENCE NO.: 72:5597a,5600a  
TITLE: Synthesis of some organophosphorus compounds: a study of the electron spin resonance spectra of the free radical anions formed by the reactions of 4,4'-bis(diphenylphosphine)biphenyl with alkali metals  
AUTHOR(S): Hnoosch, Mahdy H.; Zingaro, Ralph A.  
CORPORATE SOURCE: Chem. Dep., Texas A and M Univ., College Station, TX, USA  
SOURCE: Canadian Journal of Chemistry (1969), 47(24), 4679-84  
CODEN: CJCHAG; ISSN: 0008-4042  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB By the halogen-lithium interconversion method, 4,4'-bis(diphenylphosphine)biphenyl (I) was prepared Under different reaction conditions, mono- and dioxygenated products were obtained. An attempt to prepare I by the Grignard reagent method failed to give the expected product but 4-Ph(OH)(O)PC6H4C6H4P(O)(OH)Ph-4 was obtained. Bis(diphenylamine)phenylphosphine was also prepared Tetraphenylphosphine monoxide resulted from an attempt to prepare N-diphenylaminodiphenylphosphine. The mechanism of this reaction is discussed. Reactions of I with Na/K alloy in tetrahydrofuran and 1,2-dimethoxyethane gave a radical anion which was identified by ESR spectra at different temps.

IT 4129-45-7  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl]- (CA INDEX NAME)



L3 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1968:7836 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 68:7836  
ORIGINAL REFERENCE NO.: 68:1499a,1502a  
TITLE: Band assignment problems in the uv spectra of tertiary phosphines. Oligophenylenebis(diphenylphosphines) Schindlbauer, Hellmuth; Hilzensauer, Volkmar  
AUTHOR(S): Tech. Hochsch., Vienna, Austria  
CORPORATE SOURCE: Monatshefte fuer Chemie (1967), 98(4), 1196-200  
SOURCE: CODEN: MOCHAP  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
AB The uv spectra of phosphines Ph2P(C6H4)nPh2 (where n = 1-4) and their oxides are reported. They are compared with Ph3P and Ph3P2O. They show a bathochromic shift, which is more pronounced upon introduction of two PhP2 groups than of PPh2O groups.  
IT 4129-45--7  
RL: FRP (Properties)  
(spectrum (visible and uv) of, bathochromic shifts in)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl- (CA INDEX NAME)



L3 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1965:498542 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 63:98542  
ORIGINAL REFERENCE NO.: 63:18143e-f  
TITLE: Organometallic azides. I. Preparation and reactions of diarylphosphine azides  
AUTHOR(S): Baldwin, Roger A.; Washburn, Robert M.  
CORPORATE SOURCE: Am. Potash & Chem. Corp., Whittier, CA  
SOURCE: Journal of Organic Chemistry (1965), 30(11), 3860-6  
CODEN: JOCEAH; ISSN: 0022-3263  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A series of new diaryl-phosphinic azides, Ar2P(O)N3, having surprising thermal stability, is prepared in a high yield. Reaction of the phosphinic azides with tertiary phosphines provides a new series of compds., the N-(diarylphosphinyl)iminophosphoranes, Ar2P(O)N:PR3, some of which have exceptional thermal and chemical stabilities. The synthesis of several bis tertiary phosphines is also described.  
IT 4129-45-7, Phosphine oxide, 4,4'-biphenylenebis[diphenyl-  
RL: FRFP (Preparation)  
(preparation of)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl- (CA INDEX NAME)

---Logging off of STN---

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Executing the logoff script...

=> LOG Y

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(FILE 'HOME' ENTERED AT 12:55:30 ON 25 MAR 2010)

FILE 'REGISTRY' ENTERED AT 12:55:50 ON 25 MAR 2010

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L2 6 SEA FILE=REGISTRY SSS FUL L1

FILE 'CAPLUS' ENTERED AT 12:56:14 ON 25 MAR 2010

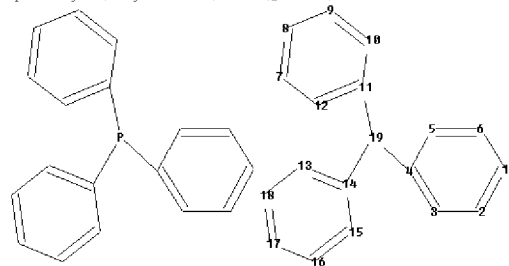
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=> file registry

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chain nodes :

19

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

chain bonds :

4-19 11-19 14-19

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15

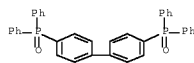
15-16 16-17 17-18

exact bonds :

4-19 11-19 14-19

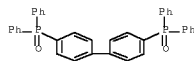
normalized bonds :

INDEX NAME)



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

L3 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1963:18967 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 58:18967  
ORIGINAL REFERENCE NO.: 58:3089e-g  
TITLE: Research and development of high-temperature-stable organo-phosphorus compounds  
AUTHOR(S): Baranaukas, Charles F.; Carlson, Richard D.; Harris, Edward E.; Lisanke, Robert J.  
CORPORATE SOURCE: Hooker Chem. Corp., Niagara Falls, NY  
SOURCE: United States Department of Commerce, Office of Technical Services, PB Report (1961), AD 263,891, 174 PP.  
CODEN: XCFRAL; ISSN: 0099-8567  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
AB A series of alkylene- and arylenebis(diphenylphosphines) and the corresponding phosphine oxides were prepared by modification of existing synthetic methods. Thermal testing by a weight loss and chemical change technique was carried out at 300-450° in N. The arylenebisphosphines and bisphosphine oxides are more stable than alkylene, with the tri- and tetramethylene and the neopentylene being the most stable alkylene bridges. The aromatic series appears to begin change by losing ring H with subsequent ring condensation. The alkyls all seem to produce F-O-R structures or, in the case of phosphines, F-H and products derived therefrom. A thermal study of simple arylphosphines and arylphosphine oxides and sulfides yielded some clues to decomposition routes, which with the above data allow some tentative suggestions on mechanisms. 321 references.  
IT 4129-45-7, Phosphine oxide, 4,4'-biphenylenebis[diphenyl-  
(thermal stability of)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl- (CA INDEX NAME)



=>

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15  
15-16 16-17 17-18

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:CLASS

L1 STRUCTURE UPLOADED

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FULL SEARCH INITIATED 15:49:17 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 365748 TO ITERATE

100.0% PROCESSED 365748 ITERATIONS

SEARCH TIME: 00.00.02

194135 ANSWERS

L2 194135 SEA SSS FUL L1

=> file caplus

=> s 12

L3 119523 L2

=> 13 and (electroluminescent or electroluminescence or (light emitting) or OLED)

93244 ELECTROLUMINESCENT  
8 ELECTROLUMINESCENTS  
93247 ELECTROLUMINESCENT  
(ELECTROLUMINESCENT OR ELECTROLUMINESCENTS)  
27055 ELECTROLUMINESCENCE  
30 ELECTROLUMINESCENCES  
27060 ELECTROLUMINESCENCE  
(ELECTROLUMINESCENCE OR ELECTROLUMINESCENCES)  
5 ELECTROLUMINESCENCE  
27061 ELECTROLUMINESCENCE  
(ELECTROLUMINESCENCE OR ELECTROLUMINESCENCE)  
1358681 LIGHT  
12942 LIGHTS  
1363016 LIGHT  
(LIGHT OR LIGHTS)  
144606 EMITTING  
234 EMITTINGS  
144652 EMITTING  
(EMITTING OR EMITTINGS)  
79378 LIGHT EMITTING  
(LIGHT(W)EMITTING)  
7825 OLED  
3875 OLEDS  
9790 OLED  
(OLED OR OLEDS)

L4 1283 L3 AND (ELECTROLUMINESCENT OR ELECTROLUMINESCENCE OR (LIGHT EMITTING) OR OLED)

=> 14 and ((electron transporting) or (electron injecting) or (electron transport) or (electron injection))

1603922 ELECTRON  
296110 ELECTRONS

1698532 ELECTRON  
(ELECTRON OR ELECTRONS)  
60784 TRANSPORTING  
4072 ELECTRON TRANSPORTING  
(ELECTRON(W)TRANSPORTING)  
1603922 ELECTRON  
296110 ELECTRONS  
1698532 ELECTRON  
(ELECTRON OR ELECTRONS)  
54954 INJECTING  
1 INJECTINGS  
54954 INJECTING  
(INJECTING OR INJECTINGS)  
795 ELECTRON INJECTING  
(ELECTRON(W)INJECTING)  
1603922 ELECTRON  
296110 ELECTRONS  
1698532 ELECTRON  
(ELECTRON OR ELECTRONS)  
870602 TRANSPORT  
7832 TRANSPORTS  
873909 TRANSPORT  
(TRANSPORT OR TRANSPORTS)  
52875 ELECTRON TRANSPORT  
(ELECTRON(W)TRANSPORT)  
1603922 ELECTRON  
296110 ELECTRONS  
1698532 ELECTRON  
(ELECTRON OR ELECTRONS)  
596409 INJECTION  
143538 INJECTIONS  
683177 INJECTION  
(INJECTION OR INJECTIONS)  
6068 ELECTRON INJECTION  
(ELECTRON(W)INJECTION)  
L5 237 L4 AND ((ELECTRON TRANSPORTING) OR (ELECTRON INJECTING) OR (ELECTRON TRANSPORT) OR (ELECTRON INJECTION))  
=> 15 and (py<2005 or ay<2005)  
25157586 PY<2005  
5162603 AY<2005  
L6 109 L5 AND (PY<2005 OR AY<2005)  
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YOU HAVE REQUESTED DATA FROM 109 ANSWERS - CONTINUE? Y/(N):y

L6 ANSWER 1 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1106699 CAPLUS Full-text  
DOCUMENT NUMBER: 143:376222  
TITLE: Organic light emitting diode containing a novel Ir complex as a phosphorescent emitter  
INVENTOR(S): Cheng, Chien-Hong; Duan, Jiun-Pey; Rayabarapu, Dinesh Kumar; Jennifer, Betty Marie  
PATENT ASSIGNEE(S): Taiwan  
SOURCE: U.S. Pat. Appl. Publ., 25 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050227109	A1	20051013	US 2004-822647	20040413 <--
US 7320834	B2	20080122		
TW 232704	B	20050511	TW 2003-92120288	20030724 <--
KR 2005012132	A	20050131	KR 2004-55376	20040716 <--
KR 853701	B1	20080825		

PRIORITY APPLN. INFO.: TW 2003-92120288 A 20030724  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 143:376222  
GI

I

II

AB Organic light-emitting diodes are described which employ an electrophosphorescent medium which comprises a phosphorescent Ir complex described by general formula I or II (X = a monoanionic bidentate ligand; Z = an atomic moiety capable of forming a nitrogen-containing heterocyclic group; R1 = H, halo, C1-6 alkyl, halogen-substituted C1-6 alkyl, C1-6 alkoxy, Ph-C1-6 alkyl, amino, and aryl; m = 0 or any pos. integer determined by the ring size of the nitrogen-containing heterocyclic group; R2 and R3 = independently selected H, halogen, C1-6 alkyl, halogen-substituted C1-6 alkyl, C1-6 alkoxy, Ph C1-6 alkyl, amino, aryl, and heterocyclic aryl).

IT 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(organic light-emitting diodes employing iridium complexes as phosphorescent emitters)

RN 603-35-0 CAPLUS  
CN Phosphine, triphenyl- (CA INDEX NAME)



IT 4736-60-1P, Triphenylethylphosphonium iodide  
RL: RCT (Reactant); SEN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(organic light-emitting diodes employing iridium complexes as phosphorescent emitters)

RN 4736-60-1 CAPLUS

CN Phosphonium, ethyltriphenyl-, iodide (1:1) (CA INDEX NAME)



REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1102876 CAPLUS Full-text  
DOCUMENT NUMBER: 143:376190  
TITLE: Organic electrophosphorescent device  
INVENTOR(S): Watanabe, Saisuke; Okada, Hisashi  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005285381	A	20051013	JP 2004-93810	20040326 <--

PRIORITY APPLN. INFO.: JP 2004-93810 20040326  
AB The invention relates to an organic electrophosphorescent comprising a light-emitting layer composed of a phosphorescent guest substance and a host polymer, typically carbazole skeleton-containing polymer, that has the hole mobility  $\geq 1 \times 10^{-6}$  (cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup>) at the elec. field strength  $\geq 1 \times 10^5$  (V/cm) and the lowest excited triplet state in 276 - 314 kJ/mol. Furthermore the light-emitting layer may contain the electron transport material having the lowest excited triplet state in 251-314 kJ/mol.  
IT 1779-49-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(organic electrophosphorescent device)  
RN 1779-49-3 CAPLUS  
CN Phosphonium, methyltriphenyl-, bromide (1:1) (CA INDEX NAME)



L6 ANSWER 3 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1077993 CAPLUS Full-text  
DOCUMENT NUMBER: 143:376607  
TITLE: Fluorene-based compound and organic electrophosphorescent display device using the same  
INVENTOR(S): Hwang, Seok-Hwan; Lee, Seok-Jong; Kim, Young-Kook; Yang, Seung-Gak; Kim, Hee-Yeon  
PATENT ASSIGNEE(S): S. Korea  
SOURCE: U.S. Pat. Appl. Publ., 31 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 5  
PATENT INFORMATION:

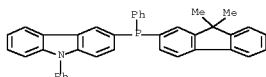
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050221124	A1	20051006	US 2005-97182	20050404
KR 2005097670	A	20051010	KR 2004-22877	20040402 <--
JP 2005290000	A	20051020	JP 2005-106551	20050401
JP 4347831	B2	20091021		
CN 1702065	A	20051130	CN 2005-10069765	20050401
US 20070231503	A1	20071004	US 2007-806039	20070529

PRIORITY APPLN. INFO.: KR 2004-22877 A 20040402  
KR 2004-54700 A 20040714  
KR 2004-98747 A 20041129  
US 2005-97182 A2 20050404  
US 2005-181706 A2 20050713  
US 2005-286421 A2 20051125  
KR 2006-48306 A 20060529  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 143:376607  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB A fluorene-based compound represented by the general formula I where Z is represented by the general formula II, III, and IV, where Ar is a substituted or unsubstituted aryl group or a group by the general formula V (X = N, B or P; Y = a single bond, a (un)substituted C1-C30 alkylene group, a (un)substituted C6-C30 arylene group, a (un)substituted C4-C30 heterocyclic group; R1, R2, R3 = H, (un)substituted C1-C30 alkyl group, a (un)substituted C6-C30 aryl group, a (un)substituted C4-C30 heterocyclic group, a (un)substituted C6-C30 condensed polycyclic group, where neighboring groups among R1, R2 and R3 are connected to each other to form a (un)saturated carbon ring; R', R'' = H, a hydroxy group, a (un)substituted C1-C30 alkyl group, a (un)substituted C6-C30 aryl group) is described. An organic electrophosphorescent display device comprising two electrodes; and an organic layer interposed between the electrodes, wherein the organic layer comprises the fluorene-based compound is also described.  
IT 86819-13-4P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(fluorene-based compound and organic electrophosphorescent display device using the same)

RN 866119-14-4 CAPLUS  
CN 9H-Carbazole, 3-[(9,9-dimethyl-9H-fluoren-2-yl)phenylphosphino]-9-phenyl-  
(CA INDEX NAME)



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD  
(8 CITINGS)

L6 ANSWER 4 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2005:982290 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 143:276848  
TITLE: Organic electronic devices  
INVENTOR(S): Gerhard, Anja; Vestweber, Horst; Stoessel, Philipp  
PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
SOURCE: Ger. Offen., 12 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 102004008304	A1	20050908	DE 2004-102004008304	20040220 <--
WO 2005084081	A1	20050909	WO 2005-EP1709	20050218
W:	AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GB, GM, KE, LS, MW, MD, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
WO 2005084082	A1	20050909	WO 2005-EP1710	20050218
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RW:	BW, GB, GM, KE, LS, MW, MD, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1716724	A1	20061102	EP 2005-707510	20050218
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, FL, SK, IS			

EP 1716725	A1	20061102	EP 2005-715402	20050218
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, FL, SK, IS			
CN 1922929	A	20070228	CN 2005-80005492	20050218
CN 1922930	A	20070228	CN 2005-80005497	20050218
CN 100482023	C	20090422		
JP 2007526634	T	20070913	JP 2006-553551	20050218
JP 2007527116	T	20070920	JP 2006-553552	20050218
KR 2006127138	A	20061211	JP 2006-716642	20060818
KR 2006133584	A	20061226	KR 2006-716687	20060818
US 20070164273	A1	20070719	US 2006-589847	20060818
US 20070170419	A1	20070726	US 2006-590037	20060818

PRIORITY APPLN. INFO.:

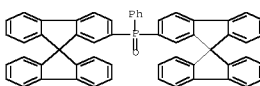
OTHER SOURCE(S): MARPAT 143:276848

AB Organic electronic devices comprising an anode, a cathode, and 21 organic layer are described in which the device does not incorporate any phosphorescent emitters and the organic layer incorporates 21 non-emitting compound having a mol. weight of 150-10000 g/mol and including structural units described by the general formula YxX (Y may be the same or different at each occurrence and is selected from C, N, P, As, Sb, Bi, S, Se or Te; X may be the same or different at each occurrence and is selected from O, S, Se, Te, or NR; and R may be the same or different at each occurrence and is selected from C1-22 organic residues, OH, or NH). The non-emitting compds. may serve as an electron-transporting material. The devices may be organic thin-film transistors, organic field-effect transistors, organic solar cells, organic photoreceptors, organic lasers, or, especially, organic electroluminescent devices.

IT 324426-27-5  
RL: DEV (Device component use); USES (Uses)  
(organic electronic devices with unsatd. structural unit-containing electron-transporting materials)

RN 824426-27-9 CAPLUS

CN Phosphine oxide, phenylbis(9,9'-spirobi[9H-fluoren]-2-yl)- (CA INDEX NAME)

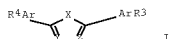


OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(3 CITINGS)

L6 ANSWER 5 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2005:555947 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 143:256770  
TITLE: Method for preparing electron transport/hole barrier material and its electro-glow parts by using oxadiazole-containing compound  
INVENTOR(S): Huang, Wei

PATENT ASSIGNEE(S): Fudan University, Peop. Rep. China  
SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, No pp. given  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1546477	A	20041117	CN 2003-10109082	20031204 <--
PRIORITY APPLN. INFO.:			CN 2003-10109082	20031204
OTHER SOURCE(S):			MARPAT 143:256770	
GI				

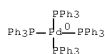


AB The Compound I (X = O; Y = Z = N; Ar = phenyl; R3 = R1Ar1; R4 = R2Ar2; Ar1, Ar2 = aromatic; R1, R2 = haloalkyl, aromatic, haloarom., halo; etc.) is claimed. and examples are given. A process for making electron transmission/cavity barrier material and electro-red-light device by using compds. I containing oxadiazole group as raw material, wherein a series of nonbranched conjugated oligomers are synthesized through organic metal catalytic reaction, the doping type red electroluminescent device containing the electron transmission/cavity barrier material and DCJTB luminescent material is also prepared, wherein the device comprises electrodes, a cavity transmission layer, an object luminescent material/subject material layer, an electron transmission/cavity barrier layer, and an electron transmission layer.

IT 14221-01-3, Pd(PPh3)4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(catalyst; method for preparing electron transport /hole barrier material and its electro-glow parts by using oxadiazole-containing compound)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



L6 ANSWER 6 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2005:302703 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 142:363467  
TITLE: Organic electroluminescent device  
INVENTOR(S): Murase, Seichiro; Tominaga, Takeshi; Kitazawa,

PATENT ASSIGNEE(S): Daisuke Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

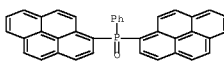
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005093425	A	20050407	JP 2004-233139	20040810 <--
PRIORITY APPLN. INFO.:			JP 2003-207260	A 20030812

AB The invention relates to an organic electroluminescence device comprising an electron transporting layer composed of a 1st electron transporting layer in contact with an electroluminescent layer and a 2nd electron transporting layer in contact with a cathode, wherein the heteroarom. compound containing an electron accepting nitrogen atom is included in the 2nd electron transporting layer for enhancing the quantum efficiency.

IT 721969-93-3 721969-96-6 724755-84-4  
724755-85-5 724755-86-6 845091-58-3  
845091-57-2  
RL: DEV (Device component use); USES (Uses)  
(electron transporting layer; organic electroluminescent device)

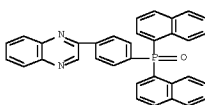
RN 721969-93-3 CAPLUS

CN Phosphine oxide, phenyl-di-1-pyrenyl- (CA INDEX NAME)



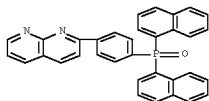
RN 721969-96-6 CAPLUS

CN Quinoxaline, 2-[(4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)

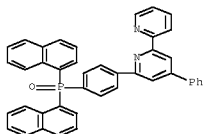


RN 724755-84-4 CAPLUS

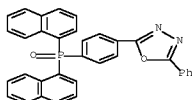
CN 1,8-Naphthyridine, 2-[(4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)



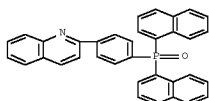
RN 724755-85-5 CAPLUS  
CN 2,2'-Bipyridine, 6-[4-(di-1-naphthalenylphosphinyl)phenyl]-4-phenyl- (CA INDEX NAME)



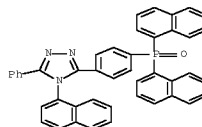
RN 724755-86-6 CAPLUS  
CN 1,3,4-Oxadiazole, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]-5-phenyl- (CA INDEX NAME)



RN 849091-56-1 CAPLUS  
CN Quinoline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)



RN 849091-57-2 CAPLUS  
CN 4H-1,2,4-Triazole, 3-[4-(di-1-naphthalenylphosphinyl)phenyl]-4-(1-naphthalenyl)-5-phenyl- (CA INDEX NAME)



L6 ANSWER 7 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:182181 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 142:268912  
TITLE: Phosphorescent material  
INVENTOR(S): Herron, Norman; Radu, Nora Sabina; Smith, Eric Maurice; Wang, Ying  
PATENT ASSIGNEE(S): E. I. Du Pont De Nemours and Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 13 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

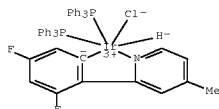
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050048312	A1	20050303	US 2003-650323	20030828 <--
US 7198730	B2	20070403		
WO 2005021679	A1	20050310	WO 2004-US28167	20040827 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, ME, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 20050196637 A1 20050908 US 2004-12036 20041214 <--  
US 7320835 B2 20080122  
PRIORITY APPLN. INFO.: MARPAT 142:268912 US 2003-650323 A 20030828  
OTHER SOURCE(S):  
AB The invention is a novel luminescent transition metal complex, a method of preparing this composition of matter, and an electronic device built with this composition of matter. The composition is an organometallic complex comprising: at least one transition metal that produces phosphorescent

emission at room temperature, at least one 1st monoanionic bidentate ligand coordinated through a N on a heteroarom. ring and a C, and at least one 2nd ligand selected from a hydride and a ligand coordinated through a C atom which is part of an aromatic group. The electronic device of the invention includes a photoactive layer, electrode and/or an electron transport layer that contains the organometallic complex described above.

IT 695877-36-5  
RL: DEV (Device component use); USES (Uses)  
(Ph pyridine transition metal complex as phosphorescent material)  
RN 845877-96-5 CAPLUS  
CN Iridium, chloro[3,5-difluoro-2-(4-methyl-2-pyridinyl-κN)phenyl-κC]hydrobis(triphenylphosphine)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)  
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

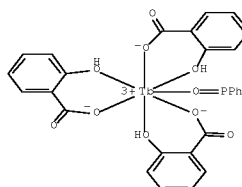
L6 ANSWER 8 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:77888 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 142:186234  
TITLE: Light emitting devices based on hyperbranched polymers with lanthanide ions  
INVENTOR(S): Vitukhnovsky, Alexei; Krivoslykov, Sergei  
PATENT ASSIGNEE(S): Altair Center, Llc., USA  
SOURCE: U.S. Pat. Appl. Publ., 18 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050017629	A1	20050127	US 2003-625301	20030722 <--

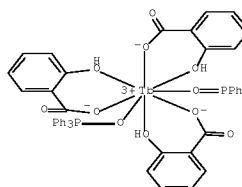
PRIORITY APPLN. INFO.: US 2003-625301 20030722  
AB Multilayered light-emitting devices formed on transparent substrates which comprise an active emitting layer, a hole-injecting electrode, a hole transfer layer, an electron-injecting electrode, and an electron transfer layer in which the active layer comprises organic or organometallic materials having a locus with good energy accepting properties and high light emitting efficiency embedded into a periphery with high electronic excitation and energy donating properties, collecting electron and hole charge carriers producing excited states via the electron-hole recombination process followed by electronic excitation energy transfer from the periphery to the locus (antenna effect) and converting the energy into the emitting light are described in which the

locus comprises lanthanide 3+ ions, the periphery has hyperbranched dendrimer-like architecture providing efficient energy transfer, and spatial separation of the light emitting locus centers is ensured to prevent concentration self-quenching of their luminescence light emission (shell-effect).

IT 695877-37-70 692008-38-80  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(Light emitting devices based on lanthanide ions with dendrimers or hyperbranched polymers)  
RN 691009-37-7 CAPLUS  
CN Terbium, tris[2-(hydroxy-κO)benzoato-κO](triphenylphosphine oxide-κO)- (CA INDEX NAME)



RN 691009-38-8 CAPLUS  
CN Terbium, tris[2-(hydroxy-κO)benzoato-κO]bis(triphenylphosphine oxide-κO)- (CA INDEX NAME)



L6 ANSWER 9 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:1028554 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 142:186054  
TITLE: Electrophosphorescence emission in organic

Light-emitting diodes based on (Sm + Eu) complexes

AUTHOR(S): Reyes, R.; Cremona, M.; Teotonio, E. E. S.; Brito, H. F.; Malta, O. L.

CORPORATE SOURCE: Departamento de Física, PUC-Rio, Pontificia Universidade Catolica de Rio de Janeiro, Rio de Janeiro, CEP 22453-970, Brazil

SOURCE: Thin Solid Films (2004), 469-470, 59-64

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In this work, we reported the preparation and the characterization of triple-layer electroluminescent organic devices using different blends of the samarium and europium  $\beta$ -diketonate complexes [SmxEu(1,3,5-tris(4-(2,6-dimethylphenyl)-1,2,3,4-tetrahydroquinoline-6-carboxyaldehyde-1,1'-diphenylhydrazine) (MTCO) as hole-transporting layer and tris(8-hydroxyquinoline) aluminum (Alq3) as electron transporting layer. The electroluminescence (EL) spectra present emission narrow bands characteristic of the Sm<sup>3+</sup> and Eu<sup>3+</sup> ions overlapped with a broad band attributed to the mol. electrophosphorescence (EP) from the triplet-singlet (T1→S0) transition from the TTA ligand. The intensity ratio of the peaks is determined by the bias voltage applied to the OLED and this fact, together with the ligand electrophosphorescence, allows fabrication of a voltage-tunable color light source.

IT 791-28-6, Triphenylphosphine oxide

RL: DEV (Device component use); PRP (Properties); USES (Uses) (emitting layer; electrophosphorescence emission in organic light-emitting diodes based on (Sm+Eu) complexes)

RN 791-28-6 CAPLUS

CN Phosphine oxide, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:793321 CAPLUS Full-text

DOCUMENT NUMBER: 141:411345

TITLE: Poly[2,7-(9,9-dihexylfluorene)-alt-pyridine] with donor-acceptor architectures: A new series of blue-light-emitting alternating copolymers

AUTHOR(S): Liu, Shou-Ping; Chan, Hardy S. O.; Ng, Siu-Choon

CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Singapore, 119260, Singapore

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2004), 42(19), 4792-4801

CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

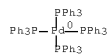
AB A novel series of well-defined alternating poly[2,7-(9,9-dihexylfluorenyl)-alt-pyridinyl] (PDHFF) with donor-acceptor repeat units were synthesized in good to high yields using palladium (0)-catalyzed Suzuki cross-coupling reactions. In this series of alternating polymers, 2, 7-(9,9-dihexylfluorenyl) was used as the light emitting unit, and the electron deficient pyridinyl unit was used to provide improved electron transport. These polymers were characterized by <sup>1</sup>H NMR and <sup>13</sup>C NMR, gel permeation chromatog., thermal analyses, and UV-visible and fluorescence spectroscopy. The glass transition temperature of copolymers in nitrogen ranged from 110° to 148°, and the copolymers showed high thermal stabilities with high decomposition temp. in the range of 350° to 390° in air. The difference in linkage position of the pyridinyl unit in the polymer backbone has significant effects on the electronic and optical properties of the polymers in solution and in film phases. Meta-linkage (3,5- and 2,6-linkage) of pyridinyl units in the polymer backbone is more favorable for pure blue emission and prevention of aggregation of polymer chains than a para-linkage (2,5-linkage) of the pyridinyl units.

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium

RL: CAT (Catalyst use); USES (Uses) (monomer; in synthesis of blue-light-emitting alternating copolymers with donor-acceptor architectures from dibromopyridines and dihexylfluorene derivative)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 19 THERE ARE 19 CAPLUS RECORDS THAT CITE THIS RECORD (19 CITINGS)

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:739385 CAPLUS Full-text

DOCUMENT NUMBER: 141:268179

TITLE: Long-life white-emitting organic electroluminescent devices, displays, illumination apparatus, and electric appliances therewith

INVENTOR(S): Fukuda, Mitsuhiro; Genda, Kazuo

PATENT ASSIGNEE(S): Konica Minolta Holdings, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 577 pp. CODEN: JKXJAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

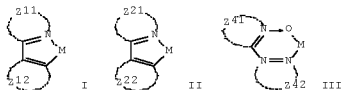
JP 2004253298 A 20040909 JP 2003-43860 20030221 <--

JP 2009055053 A 20090312 JP 2008-262504 20081009

PRIORITY APPLN. INFO.: JP 2003-43860 A3 20030221

OTHER SOURCE(S): MARPAT 141:268179

GI



AB The devices have, in their constituent layers (e.g., emitting layers, hole- or electron-transporting layers), (i) compds. represented by X1R1C:CR2X2 [X1, X2 = aryl, heterocycle; R1, R2 = aryl, heterocyclic hydrocarbyl, cycloalkoxy (R1 = R2 = aryl)], R1R1R2R3R4R5P (R1-R5 = monovalent substituent), Ar2Ar1C6H4m-Ar1Ar2 [Ar1 = bivalent aromatic hydrocarbylene; Ar2 = (substituted) Ph; H atom on the benzene ring may be substituted with (cyclo)alkyl, alkoxy, or halo], Z(ArQ)n [Q = (substituted) o-(2-pyridyl)phenyl; Z = n-valent bridging group, single bond; Ar = bivalent arylene; n = 2-8], etc., (ii) fluorescent compds. with mol. weight 500-2000 and atomic ratio F/(F + H) 0-0.9 and having fluorescent peak at ≤415 nm, (iii) polysilanes (R21R22Si)n [R21, R22 = alkyl(oxy), aromatic group, aryloxy; n1 23] or [R31(Ar31NR32R33)Si]n [R31 = alkyl(oxy), aromatic group, aryloxy; R32, R33 = alkyl, aromatic group; Ar31 = arylene; n2 23], and/or (iv) fluorescent compds. satisfying atomic ratio N/C 0-0.05. The devices, having phosphorescent dopants I (Z11 = aromatic azacycle; Z12 = nonarom. ring, 5-membered aromatic ring, azulene; M = metal), II (Z21, Z22 = aromatic azacycle; M = metal), or III (Z41 = azacycle; Z42 = ring; M = metal) in emitting layers, are also claimed. The devices exhibit high luminescent efficiency and substantially white emission, and are suited for light source uses, especially of LED.

IT 32314-41-3 620630-42-2 620630-43-5

620630-45-7 620630-46-9 620630-56-0

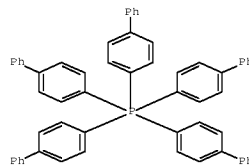
620630-57-1 620630-58-2 620630-59-3

620630-61-7

RL: DEV (Device component use); USES (Uses) (long-life white-emitting organic LED containing azacyclic phosphorescent dopants and showing high luminescent efficiency)

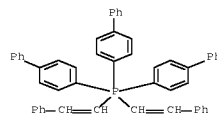
RN 32314-41-3 CAPLUS

CN Phosphorane, pentakis([1,1'-biphenyl]-4'-yl)- (9CI) (CA INDEX NAME)



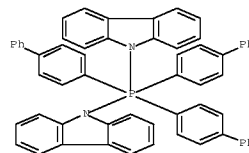
RN 620630-42-4 CAPLUS

CN Phosphorane, tris([1,1'-biphenyl]-4-yl)bis(2-phenylethenyl)- (CA INDEX NAME)



RN 620630-43-5 CAPLUS

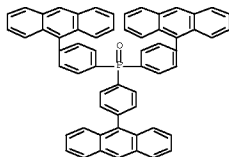
CN 9H-Carbazole, 9,9'-[tris([1,1'-biphenyl]-4-yl)phosphoranylidene]bis- (9CI) (CA INDEX NAME)



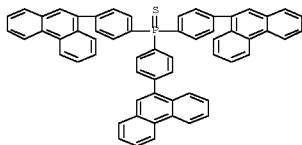
RN 620630-45-7 CAPLUS

CN Phosphine oxide, tris[4-(9-anthracenyl)phenyl]- (CA INDEX NAME)

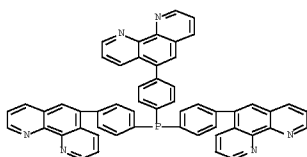




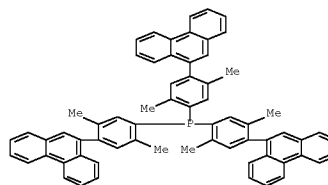
RN 620630-46-8 CAPLUS  
CN Phosphine sulfide, tris[4-(9-phenanthrenyl)phenyl]- (CA INDEX NAME)



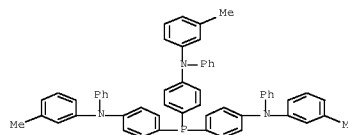
RN 620630-56-0 CAPLUS  
CN 1,10-Phenanthroline, 5,5',5''-(phosphinidynetris-4,1-phenylene)tris- (9CI)  
(CA INDEX NAME)



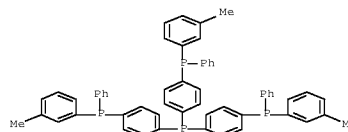
RN 620630-57-1 CAPLUS  
CN Phosphine, tris[2,5-dimethyl-4-(9-phenanthrenyl)phenyl]- (CA INDEX NAME)



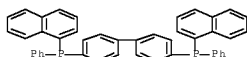
RN 620630-58-2 CAPLUS  
CN Benzenamine, 4,4',4''-phosphinidynetris[N-(3-methylphenyl)-N-phenyl]- (9CI)  
(CA INDEX NAME)



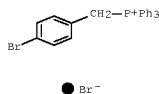
RN 620630-59-3 CAPLUS  
CN Phosphine, tris[4-[(3-methylphenyl)phenylphosphino]phenyl]- (CA INDEX NAME)



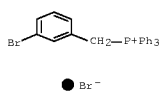
RN 620630-61-7 CAPLUS  
CN Phosphine, [1,1'-biphenyl]-4,4'-diylbis[1-naphthalenylphenyl]- (9CI) (CA INDEX NAME)



IT 51046-10-4, 4-Bromobenzyltriphenylphosphonium bromide  
95902-10-6, 3-Bromobenzyltriphenylphosphonium bromide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(long-life white-emitting organic LED containing azacyclic phosphorescent dopants and showing high luminescent efficiency)  
RN 51044-13-4 CAPLUS  
CN Phosphonium, [(4-bromophenyl)methyl]triphenyl-, bromide (1:1) (CA INDEX NAME)



RN 95902-10-6 CAPLUS  
CN Phosphonium, [(3-bromophenyl)methyl]triphenyl-, bromide (1:1) (CA INDEX NAME)

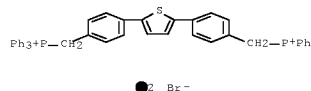


OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)

L6 ANSWER 12 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:663448 CAPLUS Full-text  
DOCUMENT NUMBER: 141:332565  
TITLE: Synthesis and characterization of new light-emitting copolymers in polymeric light-emitting diode device fabrications  
AUTHOR(S): Wu, Sheng-Han; Shen, Chi-Hsien; Chen, Jar-Hung; Hsu, Chia-Chen; Tsang, Raymond Chien-Chao  
CORPORATE SOURCE: Department of Chemical Engineering, National Chung Cheng University, Chiayi, 621, Taiwan  
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2004), 42(16), 3954-3966  
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A series of thiophene-containing photoactive copolymers consisting of alternating conjugated and nonconjugated segments were synthesized. The <sup>1</sup>H NMR spectra corroborated the well-defined structures, and the copolymers not only were soluble in common organic solvents but also had high glass-transition temps. (ca. 130°C) and good thermal stability up to 390°C. Introducing aliphatic functional groups, such as alkyl or alkoxy, into chromophores of the copolymers red shifted the photoluminescence spectra and lowered the optical bandgaps. The electrochem. bandgaps calculated from cyclic voltammetry agreed with the optical bandgaps and thus indicated that electroluminescence and photoluminescence originated from the same excited state. The energy levels (HOMO and LUMO) of all the copolymers were lower than those of poly[2-methoxy-5-(2'-ethylhexyloxy)-1,4-phenylenevinylene] MEH-PPV, indicating balanced hole and electron injection, which led to improved performance in both single-layer and double-layer polymeric light-emitting diode devices fabricated with these copolymers. All the copolymers emitted bluish-green or green light above the threshold bias of 5.0 V under ambient conditions. At the maximum bias of 10 V, the electroluminescence of a device made of poly(2-[4-(2-(3-ethoxy phenyl)ethyl)phenyl]-5-[4-(2-(3-ethoxy, 4-1,8-octanedioxy phenyl)ethyl)phenyl]thiophene) was 5836 cd/m<sup>2</sup>. The external electroluminescence efficiency decreased with the lifetime as the polymer degraded.  
IT 770720-67-0P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; preparation and polymerization of diphenylthiophene and dibenzaldehyde monomers)

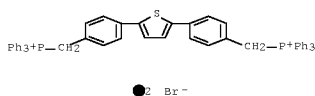
RN 770720-60-0 CAPLUS  
CN Phosphonium, [2,5-thiophenediylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide (9CI) (CA INDEX NAME)



IT 770720-67-7P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation and characterization of thiophene-containing photoactive copolymers in polymeric light-emitting diode device fabrications)  
RN 770720-67-7 CAPLUS  
CN Phosphonium, [2,5-thiophenediylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediybis(oxy)]bis[3-ethoxybenzaldehyde] (9CI) (CA INDEX NAME)

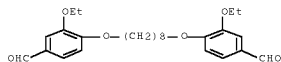
CM 1

CRN 770720-60-0  
CMF C54 H44 F2 S . 2 Br



CM 2

CRN 297155-64-7  
CMF C26 H34 O6



IT 770720-61-12 770720-63-3P 770720-65-5P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and characterization of thiophene-containing photoactive

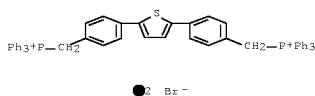
copolymers in polymeric light-emitting diode device fabrications)

RN 770720-61-1 CAPLUS

CN Phosphonium, [2,5-thiophenediylbis(4,1-phenylene)methylene]bis[triphenyl-, dibromide, polymer with 4,4'-(1,8-octanediybis(oxy))bis(benzaldehyde)] (9CI) (CA INDEX NAME)

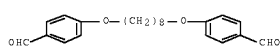
CM 1

CRN 770720-60-0  
CMF C54 H44 F2 S . 2 Br



CM 2

CRN 77355-03-4  
CMF C22 H26 O4

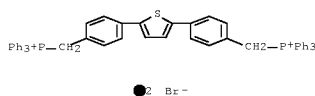


RN 770720-63-3 CAPLUS

CN Phosphonium, [2,5-thiophenediylbis(4,1-phenylene)methylene]bis[triphenyl-, dibromide, polymer with 4,4'-(1,8-octanediybis(oxy))bis[3,5-dimethylbenzaldehyde]] (9CI) (CA INDEX NAME)

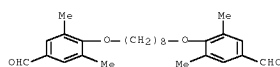
CM 1

CRN 770720-60-0  
CMF C54 H44 F2 S . 2 Br



CM 2

CRN 297155-61-4  
CMF C26 H34 O4

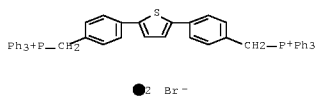


RN 770720-65-5 CAPLUS

CN Phosphonium, [2,5-thiophenediylbis(4,1-phenylene)methylene]bis[triphenyl-, dibromide, polymer with 4,4'-(1,8-octanediybis(oxy))bis[3,5-dimethoxybenzaldehyde]] (9CI) (CA INDEX NAME)

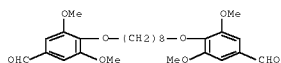
CM 1

CRN 770720-60-0  
CMF C54 H44 F2 S . 2 Br



CM 2

CRN 146119-99-5  
CMF C26 H34 O8



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)  
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

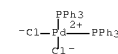
L6 ANSWER 13 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:644217 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 141:339424  
TITLE: 2,5-Di(aryleneethynyl)pyrazine derivatives: synthesis, structural and optoelectronic properties, and light-emitting device  
AUTHOR(S): Zhao, Liang; Perepichka, Igor F.; Tuerksoy, Figen; Batsanov, Andrei S.; Beeby, Andrew; Findlay, Karen S.; Bryce, Martin R.  
CORPORATE SOURCE: Department of Chemistry, University of Durham, Durham, DH1 3LE, UK  
SOURCE: New Journal of Chemistry (2004), 28(8), 912-918  
CODEN: NJCHE5; ISSN: 1144-0546  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB 2,5-Di(aryleneethynyl)pyrazine derivs. were synthesized in 23-41% yields by 2-fold reaction of 2,5-dibromo-3,6-dimethylpyrazine 3 with ethynylarenes (arene = Ph, 2-pyridyl, 4-ethylphenyl, 4-chlorophenyl, 4-biphenyl) under standard Sonogashira conditions [CuI, Pd(PPh3)2Cl2, NEt3, THF]. Compound 3 was converted into 2,5-diethynyl-3,6-dimethylpyrazine, which reacts with 2-iodothiophene to yield 2,5-bis(thien-2-ylethynyl)-3,6-dimethylpyrazine. In the x-ray crystal structure of 2,5-di(phenylethynyl)-3,6-dimethylpyrazine 4 the two Ph rings are parallel and the pyrazine ring is inclined to their planes by 14.2°. Quantum chemical calcs. establish that the HOMO-LUMO gap for 4 (3.56 eV) is lower than that of di(phenylethynyl)benzene 12 (3.72 eV). The N atoms of 4 serve to localize the HOMO on the central ring's C atoms, resulting in a quinoidal-type population, in contrast to 12. Cyclic

voltammetric studies establish that 4 undergoes a reduction to the radical anion at .apprx.-1.9 V (vs. Ag/Ag+ in MeCN), which is almost reversible at high scan rates (500 mV s-1). The UV-visible absorption and photoluminescence profiles of 4 in cyclohexane are similar to those of 12; the emission for 4 (λmax 379 and 395 nm) is red shifted compared to 12. Single-layer OLEDs using MEH-PPV as the emissive polymer show significantly enhanced external quantum efficiencies (up to 0.07%) when 20% by weight of 2,5-di(biphenyl-4-ethynyl)-3,6-dimethylpyrazine 8 is added as a dopant: this is ascribed to the enhanced electronic-transporting properties of the pyrazine system.

IT 13965-03-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(diaryleneethynyl pyrazine derivs. preparation using;  
2,5-Di(aryleneethynyl)pyrazine derivs. and their synthesis, structural and optoelectronic properties, and light-emitting device)

RN 13965-03-2 CAPLUS

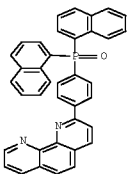
CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



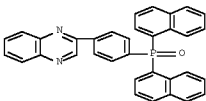
OS.CITING REF COUNT: 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS RECORD (21 CITINGS)  
REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 14 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:568350 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 141:131083  
TITLE: High-luminescence and long-life electroluminescent devices and phosphine oxide-containing materials therefor  
INVENTOR(S): Murase, Seichi; Fujiwara, Takenori; Tominaga, Takeshi  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp. CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:  
PATENT NO. KIND DATE APPLICATION NO. DATE  
JP 2004204140 A 20040722 JP 2002-376974 20021226 <--  
JP 4254231 B2 20090415  
PRIORITY APPLN. INFO.: JP 2002-376974 20021226  
OTHER SOURCE(S): MARPAT 141:131083  
AB The devices have electron-transporting layers containing the claimed phosphine oxide Ar1Ar2Ar3P=O [Ar1-Ar3 = (hetero)aryl essentially including α-naphthyl group and fluorescent or charge-transporting skeleton].  
IT 228755-75-3P  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM

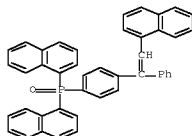
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(charge-transporting layers; high-luminance EL devices containing phosphine  
oxide derivs. in electron-transporting layers)  
RN 724755-79-7 CAPLUS  
CN 1,10-Phenanthroline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX  
NAME)



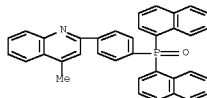
IT 721969-96-6E 724755-82-2E 724755-83-3E  
724755-84-4E 724755-85-5E 724755-86-6E  
724755-87-7E  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(electron-transporting layers; high-luminance EL  
devices containing phosphine oxide derivs. in electron-  
transporting layers)  
RN 721969-96-6 CAPLUS  
CN Quinoxaline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)



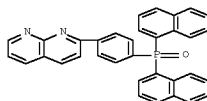
RN 724755-82-2 CAPLUS  
CN Phosphine oxide, di-1-naphthalenyl[4-[2-(1-naphthalenyl)-1-  
phenylethenyl]phenyl]- (CA INDEX NAME)



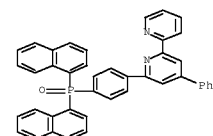
RN 724755-83-3 CAPLUS  
CN Quinoline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]-4-methyl- (CA INDEX  
NAME)



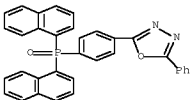
RN 724755-84-4 CAPLUS  
CN 1,8-Naphthyridine, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX  
NAME)



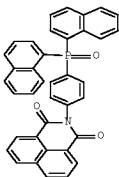
RN 724755-85-5 CAPLUS  
CN 2,2'-Bipyridine, 6-[4-(di-1-naphthalenylphosphinyl)phenyl]-4-phenyl- (CA  
INDEX NAME)



RN 724755-86-6 CAPLUS  
CN 1,3,4-Oxadiazole, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]-5-phenyl- (CA  
INDEX NAME)

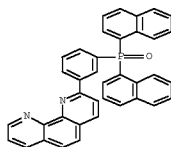


RN 724755-87-7 CAPLUS  
CN 1H-Benz[de]isoquinoline-1,3(2H)-dione,  
2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)

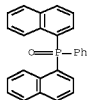


IT 724755-89-9  
RL: DEV (Device component use); TEM (Technical or engineered material  
use); USES (Uses)  
(electron-transporting layers; high-luminance EL  
devices containing phosphine oxide derivs. in electron-  
transporting layers)  
RN 724755-81-1 CAPLUS  
CN 1,10-Phenanthroline, 2-[3-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX  
NAME)

NAME)



IT 95953-70-1  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(high-luminance EL devices containing phosphine oxide derivs. in  
electron-transporting layers)  
RN 95953-70-1 CAPLUS  
CN Phosphine oxide, di-1-naphthalenylphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L6 ANSWER 15 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:564678 CAPLUS Full-Text  
DOCUMENT NUMBER: 141:131062  
TITLE: Arylphosphine oxides as electron transporters for  
organic electroluminescent devices showing  
good durability and high luminescence intensity  
Murase, Seichiro; Fujiwara, Takenori; Tominaga,  
Takeshi  
INVENTOR(S): Toray Industries, Inc., Japan  
PATENT ASSIGNEE(S): Jpn. Kokai Tokkyo Koho, 17 pp.  
SOURCE: CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:  
PATENT NO. KIND DATE APPLICATION NO. DATE  
JP 2004203828 A 20040722 JP 2002-376975 20021226 <--  
PRIORITY APPLN. INFO.: JP 2002-376975 20021226

OTHER SOURCE(S): MARPAT 141:131062

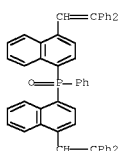
AB The arylphosphine oxides are (Ar2R2C:CR3Ar1)n(O)R13-n [I; R1-R3 = H, (cyclo)alkyl, aralkyl, alkenyl, etc.; Ar1, Ar2 = aryl, heteroaryl; Ar1 and/or Ar/2 have substituents or form condensed ring with vicinal substituent; n = 1-3]. Thus, I (R1 = R2 = Ar2 = Ph, R3 = H, Ar1 = 1,4-naphthalenediyl, n = 2) was manufactured and used as an electron transporting layer for a green-emitting organic electroluminescent device.

IT 723343-25-76

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (manufacture of arylphosphine oxides as electron transporters for organic electroluminescent devices)

RN 723343-25-7 CAPLUS

CN Phosphine oxide, bis[4-(2,2-diphenylethenyl)-1-naphthalenyl]phenyl- (CA INDEX NAME)

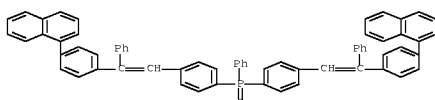


IT 723343-26-8

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (manufacture of arylphosphine oxides as electron transporters for organic electroluminescent devices)

RN 723343-26-8 CAPLUS

CN Phosphine oxide, bis[4-[2-[4-(1-naphthalenyl)phenyl]-2-phenylethenyl]phenyl]phenyl- (CA INDEX NAME)



L6 ANSWER 16 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:569278 CAPLUS Full-text

DOCUMENT NUMBER: 141:131039

TITLE: Electroluminescent device

INVENTOR(S): Murase, Seichiro; Tominaga, Manca, Jean; Vanderzande, Daisuke

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp. CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

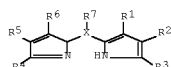
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004200162	A	20040715	JP 2003-407179	20031205 <--
PRIORITY APPLN. INFO.:			JP 2002-353461	A 20021205

OTHER SOURCE(S): MARPAT 141:131039

GI



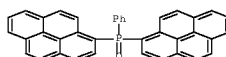
AB The invention relates to an electroluminescent device, suited for use in making a white light-emitting device, comprising an electroluminescent layer containing a pyrromethene compound or its metal complex, represented by I [R1-7 = H, alkyl, cycloalkyl, etc.; X = N and C, when X = N, then R7 = null], and an electron transporting layer having the ionization potential  $\geq 5.8$  eV. The metal forming the complex with the pyrromethene compound I is selected from B, Be, Mg, Cr, Fe, Co, Ni, Cu, Zn, and Pt.

IT 721969-93-3 721969-96-6

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (electron transporting material; organic electroluminescent device)

RN 721969-93-3 CAPLUS

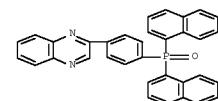
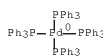
CN Phosphine oxide, phenyldi-1-pyrenyl- (CA INDEX NAME)



RN 721969-96-6 CAPLUS

CN Quinoxaline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L6 ANSWER 17 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:363775 CAPLUS Full-text

DOCUMENT NUMBER: 141:89456

TITLE: Copolymers of 3,4-Ethylenedioxythiophene and of Pyridine Alternated with Fluorene or Phenylene Units: Synthesis, Optical Properties, and Devices

AUTHOR(S): Aubert, Pierre-Henri; Knipper, Martin; Groenendaal, Lambertus; Lutsen, Laurence; Manca, Jean; Vanderzande, Dirk

CORPORATE SOURCE: IMMOEC Division, IMEC, Diepenbeek, B-3590, Belg.

SOURCE: Macromolecules (2004), 37(11), 4087-4098 CODEN: MAMORX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We report the synthesis of four conjugated copolymers based on alkylated fluorene or phenylene units which band gap is tuned by the regular insertion of an electron-donating or electron-withdrawing unit, (3,4-ethylenedioxy)thiophene and pyridine, resp. The (AB)n regular sequence is achieved by Suzuki polycondensation reactions. The characterization of the copolymers by size exclusion chromatog. reveals chains lengths of about 20-30 repeat units (40-60 rings), leading to a good processability for potential optical applications. The 1:1 ratio between the two units improves the solubility of the material in common organic solvents, allowing for physicochem. characterizations. Raman and FT-IR expts. indicate that the electronic structure of the backbone is rather benzenic in the neutral (undoped) state, as opposed to a quinoid oxidized structure. All copolymers exhibit interesting electrochromic properties as attested by cyclic voltammetry and UV-vis expts. They reversibly switch among the entire visible spectra, which is of particular importance for display applications. Moreover, the EDOT-based copolymers strongly absorb in the NIR window (1200 nm up to 3000 nm) with some potential electrochromic applications related to this spectral window. Light-emitting diodes were fabricated using these copolymers as active layer. To improve hole and electron injection, the active layer was sandwiched between a ITO/PEDOT:PSSA/copolymer/Ba/Al. The emitting properties were studied on the base of photoluminescence (PL) and electroluminescence (EL) expts. The spectral emission varies from blue-green to yellow, depending on the composition of the copolymers.

IT 742211-01-3, Pd(PPh3)4

RL: CAT (Catalyst use); USES (Uses) (polymerization catalysts; preparation and optical properties of and LEDs from copolymers prepared from dibromoethylenedioxythiophene or dibromopyridine and containing fluorene or phenylene units)

RN 14221-01-3 CAPLUS

OS.CITING REF COUNT: 25 THERE ARE 25 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)

REFERENCE COUNT: 72 THERE ARE 72 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:363472 CAPLUS Full-text

DOCUMENT NUMBER: 141:89398

TITLE: Design and Development of Novel 2-D Oligomers for Electroactive Device Application

AUTHOR(S): Wiazimbetova, Zuhra I.; Christian, Hermona Y.; Bhandari, Yashpal J.; Beyer, Frederick L.; Galvin, Mary E.

CORPORATE SOURCE: Department of Materials Science and Engineering, University of Delaware, Newark, DE, 19716, USA

SOURCE: Journal of Physical Chemistry B (2004), 108(25), 8673-8681 CODEN: JPCBEK; ISSN: 1520-6106

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Four two-dimensional conjugated p-phenylenevinylene based mols. analogous to poly(p-phenylene vinylene) (PPV) were synthesized, characterized, and evaluated for use in light-emitting diodes (LEDs). These PPV analogs contain a tetra-substituted central Ph ring, but the length, chemical structure, and placement of the arms is varied to tailor hole and electron transport properties. The PPV materials are all solution-processible, maintain conjugation through the arms and central core, and exhibit evidence of two- and possibly three-dimensional charge delocalization. The compound 1,2,4,5-tetrakis[2-[4-[2-[2,5-bis(octyloxy)-4-methylphenyl]ethenyl]phenyl]ethenyl]benzene contains four phenylenevinylene arms with solubilizing octyloxy units. The compound 2-[4-[(E)-2-[4-[(E)-2-[2,5-bis[(E)-2-[4-(E)-2-[4-methyl-2,5-bis(octyloxy)phenyl]ethenyl]ethenyl]-4-(E)-2-[4-[(E)-2-[4-(E)-2-[4-methyl-2,5-bis(octyloxy)phenyl]ethenyl]ethenyl]-5-(4-methylphenyl)]-1,3,4-oxadiazole-2-[4-[(E)-2-[4-[(E)-2-[4-[(E)-2-[4-methyl-2,5-bis(octyloxy)phenyl]ethenyl]ethenyl]ethenyl]-2-(E)-2-[4-[(E)-2-[4-methyl-2,5-bis(octyloxy)phenyl]ethenyl]ethenyl]-3-[4-(E)-2-[2,4,5-tris[(E)-2-[4-[(E)-2-[4-(E)-2-[4-methyl-2,5-bis(octyloxy)phenyl]ethenyl]ethenyl]ethenyl]-3-nitrilo-1-propenyl]phenyl]bis(octyloxy)phenyl]ethenyl]ethenyl]-2-propenenitrile, contains four cyano-phenylenevinylene arms with solubilizing octyloxy groups at the end of each arm. As a class, these mols. all have large Stokes shift, although the

propensity for  $\pi$ - $\pi$  stacking varies among them. The oxadiazole-containing compds. show promise for applications in single-layer LEDs.

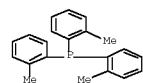
IT 6163-58-2, Tri-o-tolylphosphine

RL: RGT (Reagent); RACT (Reactant or reagent)

(preparation and mol. structure and optical properties of two-dimensional phenylene oligomers with four-arm phenol units for LEDs)

RN 6163-58-2 CAPLUS

CN Phosphine, tris(2-methylphenyl)- (CA INDEX NAME)



OS.CITING REF COUNT: 28 THERE ARE 28 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 19 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:319833 CAPLUS Full-text

DOCUMENT NUMBER: 141:54721

TITLE: Enhancement of efficiency in luminescent polymer by incorporation of conjugated 1,3,4-oxadiazole side chains as hole-blocker/electron-transporter

AUTHOR(S): Kim, Joo Hyun; Lee, Hoosung

CORPORATE SOURCE: Department of Chemistry, Sogang University, Seoul, 121-742, S. Korea

SOURCE: Synthetic Metals (2004), 143(1), 13-19

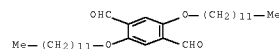
CODEN: SYMDE2; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel luminescent polymer poly(2-methoxy-5-[6'-[2'-(4'''-oxyphenyl)-5'''-phenyl-1'',3'',4'''-oxadiazole]-hexyloxy]-1,4-phenylenevinylene-alt-2,5-bis-dodecyloxy-1,4-phenylenevinylene) (MPPOXA), was synthesized by the Wittig reaction. Electron withdrawing pendant, 2-(4-oxyphenyl)-5-phenyl-1,3,4-oxadiazole (OXD), is separated from the main chain via linear 1,6-hexamethylene-dioxy chain. The band gap figured out from the UV-Vis spectrum and photoluminescence (PL) maximum of the polymer are 2.08 eV and 585 nm, resp. These values are similar to those of MEH-PPV [poly(2-methoxy-5-ethylhexyloxy-1,4-phenylenevinylene)] (2.12 eV and 580 nm). The maximum of electroluminescence (EL) of the device based on single layer structure (ITO/MPPOXA/Al) appeared at 586 nm, which is similar to that of MEH-PPV (583 nm). In PL and EL spectra, emission from OXD pendants was not observed. Single layer EL device based on MPPOXA have an external quantum efficiency of 0.01% at 2.3 mA/mm<sup>2</sup>, which is significantly higher than that of MEH-PPV (0.0002% at 2.4 mA/mm<sup>2</sup>) measured under the same conditions. The HOMO and LUMO energy levels of the polymer main chain figured out from the cyclic voltammogram and the UV-Vis spectrum are -4.96 and -2.88 eV, resp., which are similar to those of MEH-PPV (-4.98, -2.86 eV). The estimated HOMO and LUMO energy levels of the pendant were -6.17 and -2.47 eV, resp. LUMO energy level is significant lower than those of the main chain. These results suggest that



IT 603-35-0, Triphenylphosphine, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; preparation of luminescent polyphenylenevinylene polymer

by incorporation of conjugated oxadiazole side chains as hole-blocker/electron-transporter)

RN 603-35-0 CAPLUS

CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 13 THERE ARE 13 CAPLUS RECORDS THAT CITE THIS RECORD (13 CITINGS)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 20 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:267211 CAPLUS Full-text

DOCUMENT NUMBER: 140:311669

TITLE: Organic electroluminescent compositions

INVENTOR(S): Lamansky, Sergey A.; Baetzold, John P.; McCormick, Fred B.; Nirmal, Manoj; Roberts, Ralph R.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 31 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040062947	A1	20040401	US 2002-254237	20020925 <--
WO 2004099338	A2	20041118	WO 2003-US29007	20030915 <--
WO 2004099338	A3	20050106		

W: AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MM, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, A2, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

OXD units do not affect the emission maximum of the main chain comparison with MEH-PPV. The pendants block the injected holes from the anode and enhance electroluminescent property.

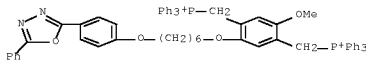
IT 708259-59-0

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(monomer; preparation of luminescent polyphenylenevinylene polymer by incorporation of conjugated oxadiazole side chains as hole-blocker/electron-transporter)

RN 708259-59-0 CAPLUS

CN Phosphonium, [[2-methoxy-5-[6'-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenoxy]hexyl]oxy]-1,4-phenylene]bis(methylene)bis(triphenyl-, dichloride (9CI) (CA INDEX NAME)



CM 1

CRN 708259-59-0

CMF C65 H60 N2 O4 P2 . 2 C1

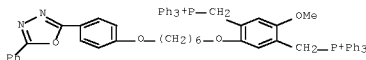
IT 708259-60-3F

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation of luminescent polyphenylenevinylene polymer by incorporation of conjugated oxadiazole side chains as hole-blocker/electron-transporter)

RN 708259-60-3 CAPLUS

CN Phosphonium, [[2-methoxy-5-[6'-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenoxy]hexyl]oxy]-1,4-phenylene]bis(methylene)bis(triphenyl-, dichloride, polymer with 2,5-bis(dodecyloxy)-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)



CM 2

CRN 123415-45-2

CMF C32 H54 O4

AU 2003304084 A1 20041126 AU 2003-304084 20030915 <--

EP 1554360 A2 20050720 EP 2003-816923 20030915 <--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

CN 1681903 A 20051012 CN 2003-822427 20030915 <--

CN 100357388 C 20071226

JP 2006510230 T 20060323 JP 2004-571703 20030915 <--

PRIORITY APPLN. INFO.: US 2002-254237 A 20020925

WO 2003-US29007 W 20030915

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 140:311669

AB Organic electroluminescent compns. are described which comprise a charge transport matrix comprising 21 electron transport material; 21 non-polymeric emissive dopant; and 21 tertiary aromatic amine. Preferably, the tertiary amine has a hole mobility greater than about .gtorsim.10-5 cm/s and an ionization potential of 4.8-5.4 eV. Organic electroluminescent devices, including displays, employing the materials are also described. Methods of making organic electroluminescent devices are described which entail selectively transferring the compns. of from a donor sheet to a receptor substrate; donor sheets suitable for the process are also described.

IT 1778-49-3, Methyltriphenyl phosphonium bromide

RL: RCT (Reactant); RACT (Reactant or reagent)

(organic electroluminescent compns. comprising electron transport materials and emitting dopants and tertiary aromatic amines and devices using them and their production using thermal transfer)

RN 1778-49-3 CAPLUS

CN Phosphonium, methyltriphenyl-, bromide (1:1) (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L6 ANSWER 21 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:257767 CAPLUS Full-text

DOCUMENT NUMBER: 141:44623

TITLE: Voltage-independent pure red devices based on a carbazole-functionalized europium complex

AUTHOR(S): Xin, Hao; Sun, Min; Wang, Ke Zhi; Zhang, Yong An; Jin, Lin Pei; Huang, Chun Hui

CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Department of Chemistry, Peking University, Beijing, 100871, Peop. Rep. China

SOURCE: Chemical Physics Letters (2004), 388(1-3), 55-57

CODEN: CHEPLC; ISSN: 0009-2614

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

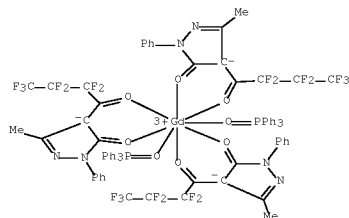
LANGUAGE: English

AB Electroluminescent properties of carazole-functionized complex  
tris(dibenzoylmethanato)(1-ethyl-2-(N-ethyl-carbazole-yl-4)imidazo[4,5-  
f][1,10-phenanthroline]europium(III) (Eu(DBM)3Phencarz) was studied. By using  
complex tris(1-phenyl-3-methyl-4-isobutyl-5-pyrazolone)-bis(tri-Ph phosphine  
oxide) Gd Gd(PMIP)3(TPPO)2 as electron-transport layer, hole and electron  
injection was relatively balanced in the emitting layer and a device with the  
configuration of ITO/TPD (20 nm)/(Eu(DBM)3Phencarz) (40 nm)/Gd(PMIP)3(TPPO)  
(20 nm)/AlQ (30 nm)/Mg:Ag emitted voltage-independent characteristic Eu light  
with the luminance of 1193 cd/m2, power efficiency 1.68 lm/W.

IT 133453-00-6  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(voltage-independent pure red devices based on a  
carbazole-functionalized europium complex)

RN 133453-00-6 CAPLUS

CN Gadolinium, tris[4-[2,2,3,3,4,4,4-heptafluoro-1-(oxo-KO)butyl]-2,4-  
dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-  
KO]bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS  
RECORD (12 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 22 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:250408 CAPLUS Full-text  
DOCUMENT NUMBER: 140:294513  
TITLE: Blue-emitting electroluminescent device  
showing excellent thermal stability, low voltage  
drive, light efficiency, and color purity  
Murase, Seichiro; Fujiwara, Takemori; Tomiyaga,  
Takeshi  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 31 pp.  
CODEN: JKXKAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

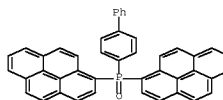
PATENT NO. KIND DATE APPLICATION NO. DATE  
JP 2004095221 A 20040325 JP 2002-251332 20020829 <--  
PRIORITY APPLN. INFO.: JP 2002-251332 20020829  
OTHER SOURCE(S): MARPAT 140:294513

AB The title blue-emitting electroluminescent device contains a blue fluorescent  
aromatic amine compound in a luminescent layer and a phosphine oxide group-  
substituted aromatic compound as an electron transport material in an adjacent  
organic thin film layer. The blue-emitting electroluminescent device is  
suitable for a matrix and/or segment type display.

IT 675603-14-2F 675603-14-2F  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(electron transport material; preparation of phosphine  
oxide aromatic compound for blue-emitting electroluminescent  
device showing excellent thermal stability, low voltage drive, light  
efficiency, and color purity)

RN 675603-14-2 CAPLUS

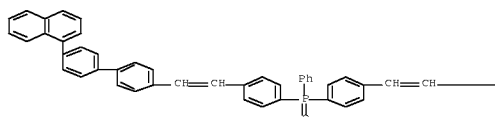
CN Phosphine oxide, [1,1'-biphenyl]-4-yl-di-1-pyrenyl- (CA INDEX NAME)



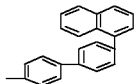
RN 675603-15-3 CAPLUS

CN Phosphine oxide, bis[4-[2-[4'-(1-naphthalenyl)][1,1'-biphenyl]-4-  
yl]ethenylphenyl]phenyl- (CA INDEX NAME)

PAGE 1-A



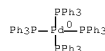
PAGE 1-B



IT 14221-01-3, Tetrakis(triphenylphosphine)palladium(0)  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of phosphine oxide aromatic compound for blue-emitting  
electroluminescent device showing excellent thermal stability,  
low voltage drive, light efficiency, and color purity)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

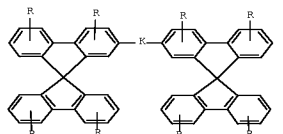


OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)

L6 ANSWER 23 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:162750 CAPLUS Full-text  
DOCUMENT NUMBER: 140:225475  
TITLE: Luminescent spiro-dimer and organic light-  
emitting device comprising the same  
Kim, Jung-Soo  
PATENT ASSIGNEE(S): Neoviewkolon Co., Ltd., S. Korea  
SOURCE: PCT Int. Appl., 25 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004016709	A1	20040226	WO 2003-KR1640	20030814 <--
W:	AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BY, B2, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, A2, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
KR 2004016274	A	20040221	KR 2002-48545	20020816 <--

AU 2003253451 A1 20040303 AU 2003-253451 20030814 <--  
US 20050238909 A1 20051027 US 2005-524410 20050214  
US 7326474 B2 20080205  
PRIORITY APPLN. INFO.: KR 2002-48545 A 20020816  
WO 2003-KR1640 W 20030814  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 140:225475  
GI



AB Luminescent spiro-dimers are described by the general formula I (K = a linking  
group; R = independently selected H, halogen, CN, CO2R\*, OR\*, NR\*2, SR\*,  
(un)substituted C1-4 alkyl, (un)substituted C4-24 (hetero)aryl,  
(un)substituted C4-24 heterocycli, or (un)substituted C4-24 fused ring group;  
and R\* = H, halogen, (un)substituted C1-6 alkyl, (un)substituted C1-6 alkenyl,  
(un)substituted C4-24 aryl, (un)substituted C4-24 heteroaryl, or  
(un)substituted C4-24 heterocyclic group). Organic light-emitting devices  
comprising a first electrode having a high work function; a second electrode  
having a low work function; and 2l organic layer formed between the first and  
second electrodes are described in which the organic layer includes the spiro-  
dimers. The luminescent spiro-dimers may be employed as the host material or  
dopant for a light-emitting layer, or in a hole-injecting layer, hole-  
transporting layer, electron-injecting layer, or electron-transporting layer.

IT 59825-55-1F  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(luminescent spiro-dimers and organic light-emitting  
devices employing them)

RN 603-35-0 CAPLUS

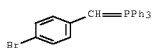
CN Phosphine, triphenyl- (CA INDEX NAME)



IT 59825-55-1F  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(luminescent spiro-dimers and organic light-emitting  
devices employing them)

RN 59825-59-1 CAPLUS

CN Phosphine, [(4-bromophenyl)methylene]triphenyl- (CA INDEX NAME)

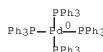


OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)  
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 24 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:73325 CAPLUS Full-text  
DOCUMENT NUMBER: 140:347094  
TITLE: Novel efficient green electroluminescent conjugated polymers based on fluorene and triarylpyrazoline for light-emitting diodes  
AUTHOR(S): Peng, Qiang; Lu, Zhi-Yun; Huang, Yan; Xie, Ming-Gui; Xiao, Dan; Han, Shao-Hu; Peng, Jun-Biao; Cao, Yong  
CORPORATE SOURCE: Department of Chemistry, Sichuan University, Chengdu, 610064, Peop. Rep. China  
SOURCE: Journal of Materials Chemistry (2004), 14(3), 396-401  
CODEN: JMACEP; ISSN: 0959-9428  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Novel light-emitting conjugated polymers based on fluorene and triarylpyrazoline were synthesized in good yields through Suzuki coupling reactions. The resulting polymers were characterized by NMR, FTIR, elemental anal., DSC, TGA and GPC. These polymers possess excellent thermal stability with glass transition temps. (Tg) of 80-162° and onset decomposition temps. (Td) of 376-387°. Cyclic voltammetry studies revealed that these polymers have good hole and electron transporting properties with LUMO energy levels of -2.97 to -2.98 eV and HOMO energy levels of -5.71 to -5.81 eV. All the polymers emit green fluorescence with very high photoluminescence (PL) quantum yields of 45-59%. Polymer light-emitting diodes (PLEDs) with the configuration ITO/EPEDOT/polymer/Ba/Al were fabricated. All these devices showed bright green emission peaking at 494-500 nm with high maximum external quantum efficiencies of 0.6-2.53% and low turn-on bias voltages. The good light-emitting properties indicate that these polymers are new and promising candidates for electroluminescent materials that can be used to fabricate efficient polymer light-emitting diodes.

IT 14221-01-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(green electroluminescent conjugated polymers based on fluorene and triarylpyrazoline for light-emitting diodes and their phys. properties)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

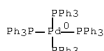


OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS RECORD (16 CITINGS)  
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 25 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:871183 CAPLUS Full-text  
DOCUMENT NUMBER: 140:60083  
TITLE: Phenothiazine-Based Conjugated Polymers: Synthesis, Electrochemistry, and Light-Emitting Properties  
AUTHOR(S): Kong, Xiangxing; Kulkarni, Abhishek P.; Jenekhe, Samson A.  
CORPORATE SOURCE: Department of Chemical Engineering and Department of Chemistry, University of Washington, Seattle, WA, 98195-1750, USA  
SOURCE: Macromolecules (2003), 36(24), 8992-8999  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Two new phenothiazine-containing conjugated polymers, poly(10-hexylphenothiazine-3,7-diyl) (PHET) and poly(10-hexylphenothiazine-3,7-diyl-alt-9,9-dihexyl-2,7-fluorene) (PETF), were synthesized and characterized, and their photophys., electrochem., and electroluminescent properties were investigated. The optical band gaps of PHET and PETF were 2.69 and 2.76 eV, resp. Both polymers showed greenish-blue photoluminescence (490 nm) in dilute solns. with a fluorescence quantum yield of 0.40. Identical solid-state and dilute solution absorption and emission spectra were observed, showing that excimers were not formed in PHET or PETF thin films. Ionization potentials (HOMO levels) estimated from cyclic voltammetry were 5.0-5.1 eV for the phenothiazine-based polymers, making them good candidates for hole transport materials in devices. Spectroelectrochem. revealed that the observed multiple oxidation peaks in the cyclic voltammetry of PHET have associated multiple absorption peaks due to the formation of radical cations (polarons) and dications (bipolarons). Greenish-blue electroluminescence with luminance of up to 320 cd/m2 was observed for the PETF organic light-emitting diodes. These results show that the phenothiazine ring is an excellent building block for lowering the ionization potential and for impeding  $\pi$ -stacking aggregation and excimer formation in conjugated polymers.

IT 14221-01-3, Tetrakis(triphenyl)phosphine palladium  
RL: CAT (Catalyst use); USES (Uses)  
(polymerization catalyst; preparation and electrochem. and light-emitting properties of phenothiazine-based conjugated polymers and LEDs from them)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

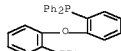


OS.CITING REF COUNT: 73 THERE ARE 73 CAPLUS RECORDS THAT CITE THIS RECORD (73 CITINGS)  
REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 26 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:855292 CAPLUS Full-text  
DOCUMENT NUMBER: 139:355878  
TITLE: Organic element for electroluminescent devices  
INVENTOR(S): Hoag, Benjamin P.; Conley, Scott R.; Kondakov, Denis Y.; Owczarczyk, Zbyslaw R.; Brown, Christopher T.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 26 pp., Cont.-in-part of U.S. Ser. No. 86,085, abandoned.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030201415	A1	20031030	US 2002-183242	20020627 <--
US 6661023	B2	20031209		
TW 267543	B	20061201	TW 2002-91138027	20021231 <--
EP 1340798	A2	20030903	EP 2003-75445	20030217 <--
EP 1340798	A3	20040204		
EP 1340798	B1	20050413		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2003257670	A	20030912	JP 2003-51059	20030227 <--
JP 4050633	B2	20080220		
CN 1441630	A	20030910	CN 2003-119806	20030228 <--
CN 100380706	C	20080409		
KR 884437	B1	20090219	KR 2003-12801	20030228 <--
PRIORITY APPLN. INFO.: US 2002-86085 B2 20020228				
US 2002-183242 A 20020627				

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 139:355878  
AB An OLED device is described comprising a light-emitting layer containing a host and a dopant where the dopant comprises a B compound complexed by 2 ring nitrogens of a deprotonated bis(aziryl)amine ligand.  
IT 166330-10-5, Bis(2-diphenylphosphinophenyl)ether  
RL: NUU (Other use, unclassified); USES (Uses)  
(organic element for electroluminescent devices using boron compound dopant)  
RN 166330-10-5 CAPLUS  
CN Phosphine, 1,1'-[(oxydi-2,1-phenylene)]bis[1,1-diphenyl]- (CA INDEX NAME)

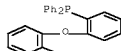


OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)

L6 ANSWER 27 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:693198 CAPLUS Full-text  
DOCUMENT NUMBER: 139:237455  
TITLE: Organic element for electroluminescent devices  
INVENTOR(S): Hoag, Benjamin P.; Kondakov, Denis Y.; Conley, Scott R.; Owczarczyk, Zbyslaw R.; Brown, Christopher T.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: Eur. Pat. Appl., 38 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1340798	A2	20030903	EP 2003-75445	20030217 <--
EP 1340798	A3	20040204		
EP 1340798	B1	20050413		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 20030201415	A1	20031030	US 2002-183242	20020627 <--
US 6661023	B2	20031209		

PRIORITY APPLN. INFO.: US 2002-86085 A 20020228  
US 2002-183242 A 20020627  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 139:237455  
AB An OLED device comprising a light-emitting layer containing a host and a dopant where the dopant comprises a B compound complexed by 2 ring nitrogens of a deprotonated bis(aziryl)amine ligand is described.  
IT 166330-10-5, Bis(2-diphenylphosphinophenyl)ether  
RL: NUU (Other use, unclassified); USES (Uses)  
(organic element for electroluminescent devices using boron compound dopant)  
RN 166330-10-5 CAPLUS  
CN Phosphine, 1,1'-[(oxydi-2,1-phenylene)]bis[1,1-diphenyl]- (CA INDEX NAME)



OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS

RECORD (10 CITINGS)

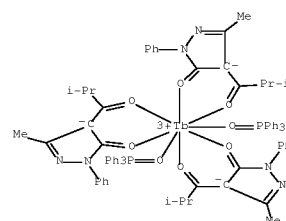
L6 ANSWER 28 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:659043 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:17075  
 TITLE: Synthesis and electroluminescent properties of blue emitting copolymers containing fluorene and biphenylene vinylene  
 AUTHOR(S): Kim, Yun-Hi; Lee, Ki-Suk; Shin, Dong-Cheol; You, Hong; Kwon, Soon-Ki  
 CORPORATE SOURCE: Department of Polymer Science & Engineering and Research Institute of Industrial Technology, Gyeongsang National University, Jinju, 660-701, S. Korea  
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2003), 44(2), 425-426  
 CODEN: ACPPAY; ISSN: 0032-3934  
 PUBLISHER: American Chemical Society, Division of Polymer Chemistry  
 DOCUMENT TYPE: Journal; (computer optical disk)  
 LANGUAGE: English  
 AB A fluorene-containing poly(phenylenevinylene) was prepared from 1,2-Bis(4'-bromophenyl)-1-(9'',9''-dihexyl-3-fluorenyl)ethene and 2,7-dibromo-9,9-dihexylfluorene. The number average mol. weight of the copolymer was Mn = 11000 with polydispersion index, PDI=1.64. The thermal properties of the polymer, evaluated by means of TGA show that the weight loss is less than 5% on heating to 400°, the glass transition temperature is about 155°. The photoluminescence spectra of in dilute solution and film forms, pumped by UV light (λ = 365 nm) has maximum peaks at 467 nm and 480 nm, resp. The electroluminescence spectrum of the polymer has a maximum at about 468 nm.  
 IT 893-35-0, Triphenylphosphine, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (polymerization catalyst system; preparation and electroluminescence of blue emitting poly(dihexylfluorene-biphenylenevinylene) and use in LEDs with PEDOT and lithium fluoride layers)  
 RN 603-35-0 CAPLUS  
 CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
 REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

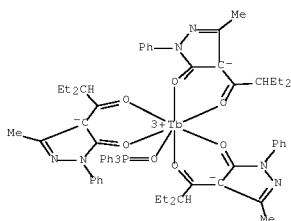
L6 ANSWER 29 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:649422 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:342936  
 TITLE: Carrier-Transport, Photoluminescence, and Electroluminescence Properties Comparison of a Series of Terbium Complexes with Different Structures  
 AUTHOR(S): Xin, Hao; Shi, Mei; Zhang, Xiao Mei; Li, Fu You; Bian, Zu Qiang; Ibrahim, K.; Liu, Feng Qin; Huang, Chun Hui  
 CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871,

SOURCE: Peop. Rep. China  
 Chemistry of Materials (2003), 15(19), 3728-3733  
 CODEN: CMATEX; ISSN: 0897-4756  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Terbium complexes with different structures revealed different carrier-transport and photophys. properties. Complex A [tris(1-phenyl-3-methyl-4-isobutyl-5-pyrazolone)-bis(tri-Ph phosphine oxide), Tb(FMIP)3(TFPO)2] had overly strong electron-transport properties, complex B [Tb(FMIP)3(EtOH)(H2O)] mainly revealed hole-transport properties, and complex C [tris(1-phenyl-3-methyl-4-(2-ethylbutyl)-5-pyrazolone) tri-Ph phosphine oxide, Tb(eb-FMF)3(TFPO)] showed both electron- and hole-transport properties. Their EL intensity ratio was A:B:C = 2.6:1:1.2. The electroluminescence (EL) performances (brightness and peak power efficiency) achieved from complexes A, B, and C were 9600 cd/m2 and 5.21 lm/W, 2500 cd/m2 and 2.61 lm/W, and 12000 cd/m2 and 11.3 lm/W, from device configurations of ITO/TPD-B-CF-AlQ-Mg0.9Ag0.1-Ag (20:20:50:30:200:80 nm), ITO/TPD-B-CF-AlQ-Mg0.9Ag0.1-Ag (40:30:20:20:200:80 nm), and ITO/NPB-C-BF-AlQ-Mg0.9Ag0.1-Ag (10:50:20:40:200:80 nm), resp. For a given Tb complex, balanced carrier injection and a well-confined recombination zone are crucial to obtaining maximum EL performance. More important, if this premise is satisfied, for different complexes, the higher the EL quantum yield the complex shows, the greatly improved the EL performance will be.  
 IT 207351-75-5 560106-43-6  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (carrier-transport, photoluminescence, and electroluminescence properties comparison of a series of terbium complexes with different structures)  
 RN 207351-75-5 CAPLUS  
 CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-ko)propyl]-2-phenyl-3H-pyrazol-3-onato-KO3]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



RN 560106-43-6 CAPLUS  
 CN Terbium, tris[4-[2-ethyl-1-(oxo-ko)butyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)-,

(TPS-7-3-12''3'2'3''2)- (CA INDEX NAME)

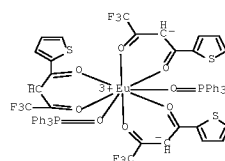


OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)  
 REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

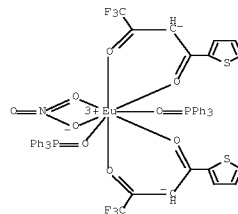
L6 ANSWER 30 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:646505 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:101300  
 TITLE: Syntheses, structures and luminescent properties of Sm(III) and Eu(III) chelates for organic electroluminescent device applications  
 AUTHOR(S): Fu, Y. J.; Wong, T. K. S.; Yan, Y. K.; Hu, X.  
 CORPORATE SOURCE: School of Electrical & Electronic Engineering, Division of Microelectronics, Nanyang Technological University, Singapore, 639798, Singapore  
 SOURCE: Journal of Alloys and Compounds (2003), 358(1-2), 235-244  
 CODEN: JALCEU; ISSN: 0925-8388  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Sm(III) and Eu(III) complexes of the β-diketone ligand (2-thienyl)trifluoroacetylacetone (HTTA) and OPPh3 (TFPO) were prepared. The complexes, Sm(HTTA)2(TFPO)2NO3 (I), Eu(HTTA)2(TFPO)2NO3H2O (II), and Eu(HTTA)3(TFPO)2 (III) were characterized. Single crystal x-ray diffraction mol. structures of complexes (I) and III are presented. Electroluminescent devices were fabricated by vacuum evaporation. Apart from single layer devices, double and triple layer devices with the following structures: ITO/TPD/Complex 2/Al; ITO/TPD/Complex 3/Al; ITO/TPD/Complex 2/Alq/Al were studied, where N,N-bis(3-methylphenyl)-N,N'-diphenyl-benzidine (TPD) was used as a hole transporting layer and tris(8-hydroxyquinolate)aluminum [Alq] as an electron transporting layer. Single layer devices show very low quantum efficiency, while the double layer devices with a hole transporting layer exhibit enhanced efficiency and a well defined EL spectrum. No significant improvement was observed in the triple layer devices with an addnl. electron transporting layer.  
 IT 132935-63-8P 85096-18-0P 132935-67-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (syntheses, structures and luminescent properties of Sm(III) and Eu(III) chelates for organic electroluminescent device applications)

RN 12121-29-8 CAPLUS  
 CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO1,KO3]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)

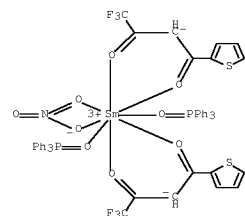


RN 85096-18-0 CAPLUS  
 CN Europium, (nitrate-KO,KO')bis[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 132935-63-8 CAPLUS  
 CN Samarium, (nitrate-KO,KO')bis[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)





IT 791-25-6, Triphenylphosphine oxide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (syntheses, structures and luminescent properties of Sm(III) and Eu(III) chelates for organic electroluminescent device applications)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)

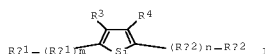


OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)  
 REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

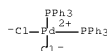
L6 ANSWER 31 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:628076 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:171345  
 TITLE: Silacyclopentadiene electron-transporting material, light-emitting element using it, and display device and illumination apparatus using it  
 INVENTOR(S): Matsuo, Mikiko; Sato, Tetsuya; Sugiyama, Hisanori  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXAXF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003226871	A	20030815	JP 2002-27071	20020204 <--

PRIORITY APPLN. INFO.: JP 2002-27071 20020204  
 OTHER SOURCE(S): MARPAT 139:171345  
 GI

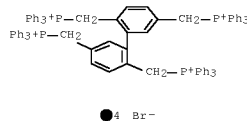


AB The electron-transporting material is a silacyclopentadiene compound represented by I [R1-4 = H, halo, alkyl, alkenyl, alkynyl, alkoxy, aryl, heterocyclic ring; Ral-a2 = vinyl, ethynyl, Ph; Rbl-b2 = (substituted) 3-membered condensation ring; m, n = 1-3]. Light-emitting elements contain the electron-transporting material in a light-emitting layer and/or an electron-transporting layer. Display devices and illumination apparatus having 21 of the light-emitting element in an electroluminescent part are also claimed. The light-emitting elements emit light with uniform brightness for a long period.  
 IT 13965-03-2, Bistriphenylphosphine dichloropalladium  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (silacyclopentadiene electron-transporting material for light-emitting element for display device or illumination apparatus)  
 RN 13965-03-2 CAPLUS  
 CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



L6 ANSWER 32 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:623244 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:9916  
 TITLE: Synthesis, characteristics and luminescence properties of oligo(phenylenevinylene) dimers with a biphenyl linkage center  
 AUTHOR(S): He, Feng; Cheng, Gang; Zhang, Haiquan; Zheng, Yan; Xie, Zengqi; Yang, Bing; Ma, Yuguang; Liu, Shiyong; Shen, Jiacong  
 CORPORATE SOURCE: Key Laboratory for Supramolecular Structure and Materials of Ministry of Education, Jilin University, Changchun, 130023, Peop. Rep. China  
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2003), (17), 2206-2207  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Building a new structural oligo(phenylenevinylene) by linking trimeric phenylenevinylene (TPV) through the phenyl-Ph bond of a central phenylene ring was reported. The resultant TPV dimers exhibit weak intermol. interactions and intense blue photoluminescence in the solid state as well as high phase transition temps. up to 250 °C. Organic light-emitting devices (OLEDs) based on these materials display blue emission with low turn-on voltage (~3 V), maximum luminance approaching 2000 cd/m2 and efficiency up to 1.6 cd/A-1.  
 IT 628729-90-8  
 RL: PRE (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (synthesis, characteristics and luminescence properties of oligo(phenylenevinylene) dimers with biphenyl linkage center)  
 RN 628729-90-8 CAPLUS  
 CN Phosphonium, 1,1',1'',1'''-[(1,1'-biphenyl)-2,2',5,5'-tetrayltetrakis(methylene)]tetrakis[1,1,1-triphenyl-, bromide (1:4) (CA INDEX NAME)



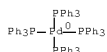
IT 603-33-0, Triphenylphosphine, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (synthesis, characteristics and luminescence properties of oligo(phenylenevinylene) dimers with biphenyl linkage center)  
 RN 603-35-0 CAPLUS  
 CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS RECORD (20 CITINGS)  
 REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 33 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:617245 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:298935  
 TITLE: Highly Efficient Blue-Light-Emitting Diodes from Polyfluorene Containing Bipolar Pendant Groups  
 AUTHOR(S): Shu, Ching-Fong; Dodda, Rajasekhari; Wu, Fang-Iy; Liu, Michelle S.; Jen, Alex K.-Y.  
 CORPORATE SOURCE: Department of Applied Chemistry, National Chiao Tung University, Hsin-Chu, Taiwan, 30035, Taiwan

SOURCE: Macromolecules (2003), 36(18), 6698-6703  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A highly efficient blue-light-emitting copolymer with bulky hole-transporting triphenylamine (TPA) and electron-transporting oxadiazole (OXD) pendant groups at the C-9 position of fluorene was synthesized. The results from luminescence and electrochem. measurements reveal that both the side chains and the polyfluorene main chain retain their own electronic characteristics in the copolymer. It shows a pure blue emission with no aggregates or excimers formed even after being annealed at 150° under N for 20 h. It demonstrates improved charge injection and balanced charge transport in electroluminescence. The maximum external quantum efficiency of a single-layer device using this copolymer as the emitting layer is 1.21% (at a brightness of 354 cd/m2 with driving voltage of 7.6 V). The maximum luminance of the device reaches 4080 cd/m2 at a bias of 12.0 V and a c.d. of 640 mA/cm2.  
 IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
 RL: CAT (Catalyst use); USES (Uses)  
 (fluorene derivs. copolym. in presence of)  
 RN 14221-01-3 CAPLUS  
 CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



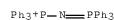
OS.CITING REF COUNT: 162 THERE ARE 162 CAPLUS RECORDS THAT CITE THIS RECORD (163 CITINGS)  
 REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 34 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:590870 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:159040  
 TITLE: Photoactive lanthanide complexes with phosphine oxides, phosphine oxide-sulfides, pyridine N-oxides, and phosphine oxide-pyridine N-oxides, and thin film OLED devices made with such complexes  
 INVENTOR(S): Greshin, Vladimir; Herron, Norman; Petrov, Viacheslav Alexandrovich; Radu, Nora Sabinay Wang, Ying  
 PATENT ASSIGNEE(S): E. I. Du Pont De Nemours and Company, USA  
 SOURCE: U.S. Pat. Appl. Publ., 18 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

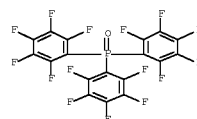
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030144487	A1	20030731	US 2002-185484	20020627 <--
US 6875523	B2	20050405		
CA 2449740	A1	20031106	CA 2002-2449740	20020703 <--
WO 2003091688	A2	20031106	WO 2002-US21024	20020703 <--

WO 2003091688 A3 20040805  
W: AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, ME, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW  
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AU 2002367777 A1 20031110 AU 2002-367777 20020703 <--  
EP 1465595 A2 20041013 EP 2002-807315 20020703 <--  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK  
CN 1606431 A 20050413 CN 2002-813590 20020703 <--  
JP 2005519988 T 20050707 JP 2004-500029 20020703 <--  
TW 593626 B 20040621 TW 2002-91114969 20020705 <--  
US 20050095202 A1 20050505 US 2004-11676 20041214 <--  
US 20050095203 A1 20050505 US 2004-11699 20041214 <--  
US 20050095204 A1 20050505 US 2004-11700 20041214 <--  
US 7090931 B2 20060815  
US 20050100511 A1 20050512 US 2004-11668 20041214 <--  
US 7063903 B2 20060620  
US 20050106109 A1 20050519 US 2004-11074 20041214 <--  
US 7087323 B2 20060808  
US 20050153165 A1 20050714 US 2004-11225 20041214 <--  
US 7074504 B2 20060711  
PRIORITY APPLN. INFO.:  
US 2001-303283P P 20010705  
US 2002-185484 A3 20020627  
WO 2002-US21024 W 20020703

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 139:159040  
AB The present invention is generally directed to luminescent lanthanide compds. with phosphine oxide, phosphine oxide-sulfide, pyridine N-oxide, and phosphine oxide-pyridine N-oxide ligands, especially with  $\beta$ -enolate co-ligands. It also relates to thin film OLED electronic devices in which the active layer includes the photoactive lanthanide complex. Thus, Tb(PMBP)3(F5tpo)2 [PMBP = 4-isobutyl-3-methyl-1-phenyl-5-pyrazolinate, F5tpo = tris(pentafluorophenyl)phosphine oxide] was prepared and its electroluminescent properties were measured along with 7 other prepared complexes. Thin layer OLED devices were prepared including a hole transport layer, electroluminescent layer comprising the lanthanide complexes of the invention, and at least one electron transport layer. Various hole and electron transport materials are also claimed. Cyclometalated iridium complexes derived from (un)substituted 2-phenylpyridines are preferred.  
IT 2005013-5, Bis(triphenylphosphine)iminium chloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(conversion to monophosphine oxide phosphonamide phosphorane by refluxing in aqueous NaOH)  
RN 21050-13-5 CAPLUS  
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-KN)-, chloride (1:1), (T-4)- (CA INDEX NAME)



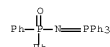
IT 2729-11-5, Tris(pentafluorophenyl)phosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(coordination in luminescent lanthanide complexes)  
RN 2729-11-5 CAPLUS  
CN Phosphine oxide, tris(2,3,4,5,6-pentafluorophenyl)- (CA INDEX NAME)



IT 781-28-6, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(for preparation of luminescent lanthanide  $\beta$ -enolate complexes containing phosphine oxides and analogs)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)

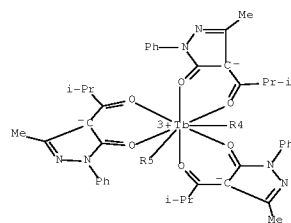


IT 2156-69-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and coordination in luminescent lanthanide complexes)  
RN 2156-69-6 CAPLUS  
CN Phosphinic amide, F,P-diphenyl-N-(triphenylphosphoranylidene)- (CA INDEX NAME)



IT 569642-07-5P 589842-09-7P 569642-11-1E  
569642-12-2E  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation and electroluminescent properties as photoactive lanthanide complex for use in electronic devices)  
RN 569642-07-5 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-[(2-methyl-1-(oxo-KO)propyl)-2-phenyl-3H-pyrazol-3-onato-KO3]bis[tris(pentafluorophenyl)phosphine oxide-KO]- (9CI) (CA INDEX NAME)

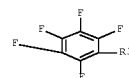
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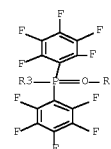
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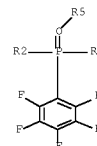
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PAGE 4-A

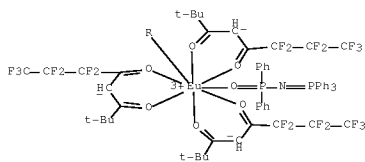


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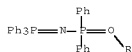


RN 569642-09-7 CAPLUS  
CN Europium, bis[F,P-diphenyl-N-(triphenylphosphoranylidene)phosphinic amide-KO]tris(6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5-octanedionato-KO,KO')- (9CI) (CA INDEX NAME)

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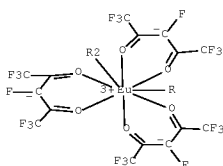


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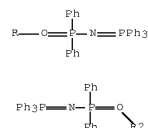


RN 569642-11-1 CAPLUS  
CN Europium, bis[P,F-diphenyl-N-(triphenylphosphoranylidene)phosphinic amide- $\kappa$ O]tris(1,1,1,3,5,5,5-heptafluoro-2,4-pentanedionato- $\kappa$ O, $\kappa$ O')- (9CI) (CA INDEX NAME)

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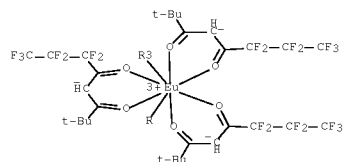


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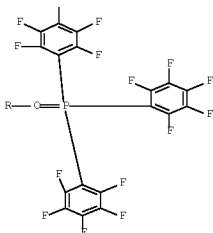


RN 569642-12-2 CAPLUS  
CN Europium, tris(6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5-octanedionato- $\kappa$ O, $\kappa$ O')bis[tris(pentafluorophenyl)phosphine oxide- $\kappa$ O]- (9CI) (CA INDEX NAME)

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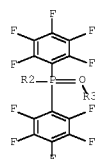
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PAGE 3-A

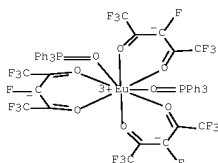


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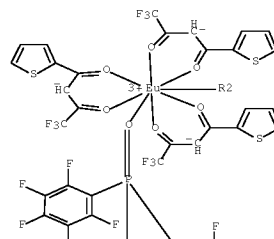
IT 431076-61-89  
RL: DEV (Device component use); FRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation and luminescence as photoactive lanthanide complex for use in electronic devices)  
RN 431076-61-8 CAPLUS  
CN Europium, tris(1,1,1,3,5,5,5-heptafluoro-2,4-pentanedionato-

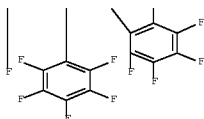
$\kappa$ O, $\kappa$ O')bis(triphenylphosphine oxide- $\kappa$ O)- (9CI) (CA INDEX NAME)



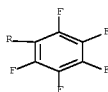
IT 569642-18-55  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation as photoactive lanthanide complex for use in electronic devices)  
RN 569642-16-6 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O, $\kappa$ O']bis[tris(pentafluorophenyl)phosphine oxide- $\kappa$ O]- (9CI) (CA INDEX NAME)

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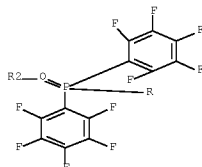




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PAGE 3-A



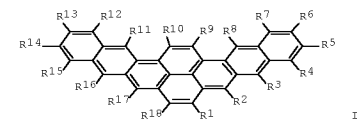
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OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)  
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 35 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:373827 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:392819  
TITLE: Dinaphthopyrene compounds, organic EL element and organic EL display using the same  
INVENTOR(S): Sotoyama, Wataru; Sato, Hiroyuki; Matsuura, Azuma; Narusawa, Toshiaki  
PATENT ASSIGNEE(S): Fujitsu Limited, Japan; Fujifilm Corporation  
SOURCE: Eur. Pat. Appl., 32 pp.

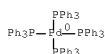
DOCUMENT TYPE: CODEN: EFXDXW  
LANGUAGE: Patent  
FAMILY ACC. NUM. COUNT: English  
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PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1310473	A1	20030514	EP 2002-252333	20020328 <--
EP 1310473	B1	20081210		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003151772	A	20030523	JP 2001-342678	20011108 <--
JP 3953791	B2	20070808		
CN 1417180	A	20030514	CN 2002-122187	20020329 <--
CN 1184177	C	20050112		
US 20030113579	A1	20030619	US 2002-108388	20020329 <--
US 6783872	B2	20040831		
TW 245065	B	20051211	TW 2002-91106379	20020329 <--
KR 854880	B1	20080828	KR 2002-17650	20020330 <--
PRIORITY APPLN. INFO.: JP 2001-342678				A 20011108
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
OTHER SOURCE(S): MARPAT 138:392819				
GI				



AB A dinaphthopyrene compound which may be used in an organic electroluminescent element is described wherein the structure of the dinaphthopyrene compound is expressed according to dinaphtho[2',3',3,4][2'',3'',9,10]pyrene substituted with R1-R18 = H, aryl group, halogen, hydroxyl, cyano, alkyl, alkoxy, aryloxy, arylamino, diarylamino expressed as -N(Ar1)(R19) where Ar1 = aryl group, R19 = H or alkyl having C1-C10, phenylamino diphenylamino or Ph groups; or R1, R3-R16, R18 = H and R2, R17 = Ph, phenylamino, diphenylamino. An organic electroluminescent element is also described comprising an organic thin-film layer including a light-emitting layer in between a pos. and neg. electrode, and the described dinaphthopyrene compound, whereby the organic electroluminescent element has high color purity of green light, excellent light-emitting efficiency, light-emitting luminance.  
IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
RL: CAT (Catalyst use); USES (Uses)  
(dinaphthopyrene compds., organic EL element and organic EL display using the same)  
RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

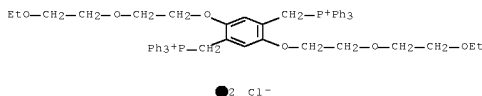
L6 ANSWER 36 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:295393 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 139:28436  
TITLE: New Series of Blue-Emitting and Electron-Transporting Copolymers Based on Cyanostilbene  
AUTHOR(S): Zhan, Xiaowei; Wang, Shuai; Liu, Yunqi; Wu, Xia; Zhu, Daoben  
CORPORATE SOURCE: Center for Molecular Science, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
SOURCE: Chemistry of Materials (2003), 15(10), 1963-1969  
CODEN: CMATEX; ISSN: 0897-4756  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Conjugated copolymers having fluorene and binaphthyl moieties in the main chain and based on cyanostilbene were synthesized in good yields by a Pd-catalyzed Suzuki coupling reaction, a new approach different from the traditional Knoevenagel condensation polymerization. Through controllable modification of the main chain structures, not only were the thermal, electronic, and optical properties of the polymers tuned, but also the structure-property relations were studied. All these polymers possess excellent thermal stability with glass-transition temps. of 60-159° and onset decomposition temps. of 411-417°. Cyclic voltammetry studies reveal that these copolymers have low-lying LUMO energy levels ranging from -2.92 to -3.08 eV and low-lying HOMO energy levels ranging from -6.01 to -6.13 eV, and they may be promising candidates for electron-transporting or hole-blocking materials in light-emitting diodes (LEDs). The polymers in thin films emit strong blue luminescence around 457-489 nm with narrow bandwidth upon photoexcitation. The single-layer LED fabricated with a copolymer F-CN composed of fluorene and cyanostilbene units using an air-stable Al electrode emits blue light with an external quantum efficiency of 0.006%. A double-layer LED, fabricated using a blend of poly(N-vinylcarbazole) and F-CN as emitting layer and tris(8-hydroxyquinolinato)aluminum as electron transporting layer, shows an external quantum efficiency of 0.2%. Preliminary electroluminescent results show that these polymers are new candidates for blue emissive materials in polymeric LEDs.  
IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
RL: CAT (Catalyst use); USES (Uses)  
(blue-emitting and electron-transporting copolymers based on cyanostilbene synthesized using)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

OS.CITING REF COUNT: 32 THERE ARE 32 CAPLUS RECORDS THAT CITE THIS RECORD (32 CITINGS)  
REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 37 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:187624 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:402236  
TITLE: Synthesis and characterization of novel soluble alternating copoly(phenylene vinylene) derivative for light-emitting electrochemical cell  
AUTHOR(S): Xiang, Dong; Shen, Qundong; Zhang, Suyang; Jiang, Xiqun  
CORPORATE SOURCE: Department of Polymer Science & Engineering, College of Chemistry & Chemical Engineering, Nanjing University, Nanjing, 210093, Peop. Rep. China  
SOURCE: Journal of Applied Polymer Science (2003), 88(5), 1350-1356  
CODEN: JAPNAB; ISSN: 0021-8995  
PUBLISHER: John Wiley & Sons, Inc.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A novel alternating copolymer, poly([2,5-di(2-(2-ethoxy ethoxy)ethoxy)-1,4-phenylene vinylene]-alt-1,4-[phenylene vinylene]), has been synthesized through the Wittig condensation as electroluminescent material. In this copolymer, one component is phenylene vinylene with flexible oligo(ethylene oxide) side chain that facilitates ion transportation and phase miscibility between nonpolar and polar part of composite luminescent layer, and another is a rigid phenylene vinylene moiety to improve luminescent quantum efficiency and tune color. The copolymer shows good solubility and thermal stability for device fabrication compared to poly(phenylene vinylene) (PPV). The band gap value of copolymer is between those of corresponding homopolymers, which indicates that alternating copolymers is a suitable way to obtain luminescent polymer with desired band gap. The maximum wavelength of photoluminescence of copolymer is 539 nm (yellowish-green). The HOMO and LUMO energy levels obtained by cyclic voltammetry measurement indicate that the electron injection ability of copolymer has been greatly improved compared with that of the PPV. A more balanced carrier injection and higher quantum efficiency are proved by electroluminescent properties of corresponding light-emitting devices. The turn-on voltage of LED device (ITO/copolymer + PEO + LiClO4/Al) is found to be 2.3 V, with current comparative to LED (ITO/copolymer/Al) at 9.5 V.  
IT 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(in reaction with chloromethylbenzene derivative)  
RN 603-35-0 CAPLUS  
CN Phosphine, triphenyl- (CA INDEX NAME)



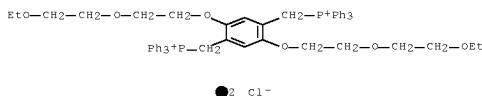
IT 302790-67-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; preparation of, and in polymerization with terephthalaldehyde)  
RN 302790-67-6 CAPLUS  
CN Phosphonium, [[2,5-bis[2-(2-ethoxyethoxy)ethoxy]-1,4-phenylene]bis(methylene)]bis[triphenyl-, dichloride (9CI) (CA INDEX NAME)



IT 302790-68-7P  
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis and characterization of novel soluble alternating copoly(phenylene vinylene) derivative for light-emitting electrochem. cell)  
RN 302790-68-7 CAPLUS  
CN Phosphonium, [[2,5-bis[2-(2-ethoxyethoxy)ethoxy]-1,4-phenylene]bis(methylene)]bis[triphenyl-, dichloride, polymer with 1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

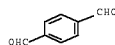
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CRM 302790-67-6  
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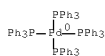
CRM 623-27-8  
CMF C8 H6 O2



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)  
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 38 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:74899 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:255616  
TITLE: New Phenyl-Substituted PPV Derivatives for Polymer Light-Emitting Diodes-Synthesis, Characterization and Structure-Property Relationship Study  
AUTHOR(S): Chen, Zhi-Kuan; Lee, Nancy Hoi Sim; Huang, Wei; Xu, Yi-She; Cao, Yong  
CORPORATE SOURCE: Institute of Materials Research and Engineering (IMRE), Singapore, 117602, Singapore  
SOURCE: Macromolecules (2003), 36(4), 1009-1020  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Three PPV (poly(phenylene-vinylene)) derivs. with di-hexyloxyphenyl substituents, BEH2P-PPV, BEH3P-PPV, and BEH4P-PPV were synthesized and characterized by FT-IR, <sup>1</sup>H NMR, and elemental anal. The polymers possess excellent solubility in organic solvents, high mol. weight, high photoluminescence efficiency, and good thermal stability. The influence of substitution pattern on the formation of structural defects was studied by measuring the signal due to tolane-bisbenzyl moieties (TBB) in the proton NMR spectra. The BEH2P-PPV with a steric Ph group at the ortho-position on the side Ph ring shows the lowest amount of TBB, which indicates that suitable steric hindrance can be applied to suppress the formation of irregular head-to-head and tail-to-tail linkages in the polymer chains. The polarity of solvents used in the Gilch polymerization also affect the extent of irregular structures in the polymers, i.e., polar solvents such as THF caused formation of polymers with low TBB content. Energy level measurement from cyclic voltammetry revealed that the influences of substitution pattern on the HOMO and LUMOs are different. The three polymers possess similar HOMO energy levels while the LUMO of BEH4P-PPV is much higher than that of the other two polymers. Light-emitting diode structures fabricated from BEH2P-PPV, BEH3P-PPV, and BEH4P-PPV, with configuration of ITO/PEDOT/polymer/Ba/Al, emitted bright blue-green to green light with maximum peaks at 496, 488, and 525 nm, resp. The turn-on elec. field and maximum external quantum efficiency of the diodes are 0.30, 0.50, and 0.42 MV/cm and 0.37%, 0.66%, and 0.25% resp. The quantum efficiency is mainly determined by electron injection from the cathode. With the highest luminance, lowest turn-on elec. field, and good quantum efficiency and negligible structural defects, BEH2P-PPV is the most promising material among the three polymers for polymer light-emitting diodes.  
IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
RL: CAT (Catalyst use); USES (Uses)  
(Suzuki coupling catalyst; preparation of dihexyloxy-Ph-phenylenes and PPVs with high stability and luminescence and performance in FLEDs)  
RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 51 THERE ARE 51 CAPLUS RECORDS THAT CITE THIS RECORD (51 CITINGS)  
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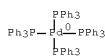
L6 ANSWER 39 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:58816 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:107157  
TITLE: Photopolymerization of light emitting polymer for electronic displays  
INVENTOR(S): O'Neill, Mary; Kelly, Stephen Malcolm; Contoret, Adam  
PATENT ASSIGNEE(S): UK  
SOURCE: U.S. Pat. Appl. Publ., 23 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030018097	A1	20030123	US 2001-898748	20010703 <--
US 20030119936	A1	20030626	US 2002-187381	20020701 <--
US 6867243	B2	20050315		
US 20050004251	A1	20050106	US 2004-858864	20040601 <--
US 7166239	B2	20070123		
US 20050004252	A1	20050106	US 2004-859446	20040601 <--
US 7265163	B2	20070904		
US 20050096404	A1	20050505	US 2004-858507	20040602 <--
US 7199167	B2	20070403		
US 20070194277	A1	20070823	US 2007-626051	20070123
			GB 2001-15986	A 20010629
			US 2001-898748	A2 20010703
			US 2002-187381	A1 20020701
			US 2004-858507	A1 20040602

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A process for forming a light emitting polymer wherein photopolymn. is carried out using a reactive mesogen having an end group susceptible to photopolymn., e.g., by a radical polymerization process. Also, the light emitting polymer produced and methods for using the light emitter in displays, back-lights, electronic apparatus and security viewers. Thus, 2,7-bis(5-(4-[5-(1-vinylallyloxy)carbonyl]pentyloxy)phenyl)thien-2-yl)-9,9-dipropylfluorene was prepared and polymerized using light from an Argon Ion laser to give a light emitting polymer for electroluminescent devices.  
IT 14221-01-3, Tetrakis(triphenylphosphine)-palladium(0)  
RL: CAT (Catalyst use); USES (Uses)  
(photopolymn. of light emitting polymer for electronic displays)

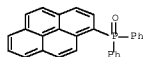
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L6 ANSWER 40 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:963854 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:46951  
TITLE: Organic electroluminescent elements  
INVENTOR(S): Tomimaga, Takeshi; Makiyama, Akira; Kohana, Toru  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKKXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002367785	A	20021220	JP 2001-173611	20010608 <--
PRIORITY APPLN. INFO.:			JP 2001-173611	20010608
AB The elements comprise: Ip(ETL) < Ip(EMT); Ea(ETL) < Ea(EML) (Ea = electron affinity (eV); Ip = ionization potential (eV); ETL = electron transport layer containing an organic compound with a mol. weight > 400; EMT = phosphor layer).				
IT 110988-94-8 RL: DEV (Device component use); USES (Uses) (organic electroluminescent elements)				
RN 110988-94-8 CAPLUS				
CN Phosphine oxide, diphenyl-1-pyrenyl- (CA INDEX NAME)				



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L6 ANSWER 41 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:944691 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:24555  
TITLE: Preparation of polyphenylene compounds as electroluminescent materials and intermediate

INVENTOR(S): therefor and method for their preparation  
Shibanuma, Tetsuo; Tamura, Shinichiro; Ichimura, Mari;  
Takada, Kazunori; Ueno, Keiko  
PATENT ASSIGNEE(S): Sony Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKKXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

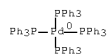
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002356449	A	20021213	JP 2001-284504	20010919 <--
PRIORITY APPLN. INFO.:			JP 2001-89945	A 20010327
OTHER SOURCE(S):			CASREACT 138:24555; MAREPAT 138:24555	
GI				

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB 2,2',7,7'-Tetrakis(1,1'-biphenyl-4-yl)-9,9'-spirobifluorene derivs. [I; R1 = C21 (un)saturated hydrocarbyl or hydrocarbyloxy, CF3, halo; n = an integer of 1-5] are prepared by Suzuki coupling of 1,1'-biphenyl-4-ylboronic acid (II); R1, n = same as above) with 2,2',7,7'-tetrabromo-9,9'-spirobifluorene (III) in the presence of 1,1'-bis(diphenylphosphino)ferrocene palladium(II) dichloride [PdCl2(dppf)] (IV). The polyphenylene compds. exhibit stable and pure blue luminescence, clear glass transition temperature, thermal stability, and amorphous property and are difficult to crystallize and suitable for vacuum deposition. They are useful as electroluminescent materials for electroluminescent devices. Thus, 1.86 g III, 4.10 g 2-(2'-methyl-1,1'-biphenyl-4-yl)-4,4,5,5-tetramethyl-1,3,2-dioxaborolane (V), and 0.087 g IV were dissolved in 120 mL THF, stirred at room temperature for 30 min under N, treated with 60 mL saturated aqueous NaHCO3, and refluxed for 10 h with stirring under N to give 84.3% 2,2',7,7'-tetrakis(2'-methyl-1,1'-biphenyl-4-yl)-9,9'-spirobifluorene (VI). An organic electroluminescent device having an electron-transporting luminescent layer of VI (30 nm) exhibited blue electroluminescence at o.d. 25 mA/cm2 with brilliance 76.1 cd/m2.

II 14221-01-3, Tetrakis(triphenylphosphine)palladium  
RL: CAT (Catalyst use); USES (Uses)  
(Suzuki coupling catalyst; preparation of polyphenylene compds. as electroluminescent materials and intermediate therefor by Suzuki coupling of biphenylboronic acid with 2,2',7,7'-tetrabromo-9,9'-spirobifluorene)

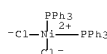
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



IT 14264-16-5, Bis(triphenylphosphine)nickel(II) dichloride

RL: CAT (Catalyst use); USES (Uses)  
(coupling catalyst; preparation of polyphenylene compds. as electroluminescent materials and intermediate therefor by Suzuki coupling of biphenylboronic acid with 2,2',7,7'-tetrabromo-9,9'-spirobifluorene)

RN 14264-16-5 CAPLUS  
CN Nickel, dichlorobis(triphenylphosphine)- (CA INDEX NAME)

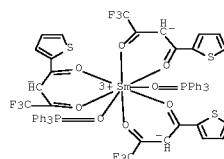


L6 ANSWER 42 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:931158 CAPLUS Full-text  
DOCUMENT NUMBER: 138:245212  
TITLE: Growth and characterization of OLED with samarium complex as emitting and electron transporting layer  
AUTHOR(S): Reyes, R.; Hering, E. N.; Cremona, M.; da Silva, C. F. B.; Brito, H. F.; Achete, C. A.  
CORPORATE SOURCE: Departamento de Física, Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, CEP 22453-970, Brazil  
SOURCE: Thin Solid Films (2002), 420-421, 23-29  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The growth and the characterization of new orange emitting triple-layer electroluminescent organic devices using vacuum deposited trivalent Sm complex [Sm(TTA)3(TFPO)2] as emission layer is described. The electroluminescence (EL) spectra of the devices show narrow bands arising from the 5G5/2 6HJ transitions (J = 5/2, 7/2 and 9/2) of the Sm3+ ion with the hypersensitive 5G5/2 6HJ transitions as the prominent group. The hole transporting layer (HTL) was obtained using a thin film of 1-(3-methylphenyl)-1,2,3,4-tetrahydroquinoline-6-carboxyaldehyde-1,1'-diphenylhydrazine (MTCd), while the tris(8-hydroxyquinoline Al) (Alq3) was used as electron transport layer (ETL). Also, to use the Sm complex, two different kinds of OLEDs were prepared: the 1st one with a typical three layers architecture, MTCd/[Sm(TTA)3(TFPO)2]/Alq3, while the 2nd one was a bi-layer device with an MTCd/[Sm(TTA)3(TFPO)2] design without the Alq3 ETL layer. In the last case, the EL emission was also observed, which indicates that the [Sm(TTA)3(TFPO)2] complex may be used as an electron transporting layer also.

IT 492440-34-3  
RL: DEV (Device component use); FRP (Properties); USES (Uses)  
(growth and characterization of OLED with samarium complex as emitting and electron transporting layer)

RN 492440-34-3 CAPLUS  
CN Samarium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-ko,ko']bis(triphenylphosphine oxide-ko)- (SCI) (CA INDEX NAME)



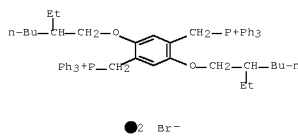
OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)  
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 43 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:876474 CAPLUS Full-text  
DOCUMENT NUMBER: 138:244988  
TITLE: Preparation and luminescence properties of polymeric 2,5-bis[2'-(8''-alkoxyquinolin-2''-yl)ethenyl]hydroquinone derivatives  
Hsu, Ming-Ann; Chow, Tshin J.  
AUTHOR(S): Institute of Chemistry, Academia Sinica, Taichung, 115, Taiwan  
CORPORATE SOURCE: Australian Journal of Chemistry (2002), 55(8), 499-504  
SOURCE: CODEN: AJCHAS; ISSN: 0004-9425  
PUBLISHER: CSIRO Publishing  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A PFV-type polymer (1) incorporating 5,5'-diquinoliny moieties was prepared by a Yamamoto homo-coupling reaction from the dibromide (2). Since all the hydroxyl groups were alkylated, this polymer showed high solubility in most organic solvents. It can be spin-coated readily to form a thin layer in the fabrication of light emitting diode (LED) devices. The adjacent quinoline rings are twisted to form a dihedral angle due to steric hindrance, so that  $\pi$ -conjugation is confined within each monomer unit. The emission spectra of (1) and (2) are nearly identical. The reduction potential of (1) is -1.10 V (onset), with a band gap of 2.53 eV (490 nm). A single hetero-junction LED device fabricated by combining the films of poly(vinylcarbazole) (PVK) and (1) yielded promising results. The device ITO/PVK/(1)/Ca/Al exhibited a turn-on voltage at 6 V and reached a maximal brightness of 250 cd/m2 at 15 V. An alternate potential usage of (1) as an electron-injecting material was also explored on a green-light device using coumarin-6 as an emitter.

IT 501911-50-8  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and luminescence properties of polymeric 2,5-bis[2'-(8''-alkoxyquinolin-2''-yl)ethenyl]hydroquinone derivs.)

RN 501911-50-8 CAPLUS  
CN Phosphonium, [[2,5-bis[(2-ethylhexyloxy)-1,4-phenylene]bis(methylene)]bis(triphenyl-, dibromide (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)  
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 44 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:869018 CAPLUS Full-text  
DOCUMENT NUMBER: 137:360160  
TITLE: Electroluminescent devices  
Kathirgamanathan, Poopathy  
INVENTOR(S): Elam-T Limited, UK  
PATENT ASSIGNEE(S): ECT Int. Appl., 57 pp.  
SOURCE: CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

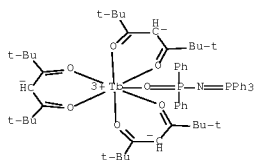
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002090466	A1	20021114	WO 2002-GB2094	20020507 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GR, GU, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LG, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, T2, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2002255147	Al	20021118	AU 2002-255147	20020507 <--
PRIORITY APPLN. INFO.:			GB 2001-10995	A 20010504
			GB 2001-11000	A 20010504
			WO 2002-GB2094	W 20020507

AB Electroluminescent devices comprising an anode, a layer of a metal chelate electroluminescent compound, and a cathode are described in which the cathode and/or the anode is silicon; preferably there is a layer of a hole-transporting material between the anode and the electroluminescent compound and a layer of an electron-transporting material between the electroluminescent compound and the cathode.

IT 156882-92-7  
RL: DEV (Device component use); USES (Uses)  
(electroluminescent devices with silicon electrodes and metal chelate-containing active layers)

RN 156882-92-7 CAPLUS  
CN Terbium, [P,P-diphenyl-N-(triphenylphosphoranylidene)phosphinic

amide-ko]tris(2,2,6,6-tetramethyl-3,5-heptanedionato-  
ko,ko')- (9CI) (CA INDEX NAME)



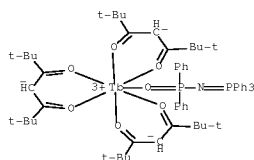
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 45 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:869017 CAPLUS Full-text  
DOCUMENT NUMBER: 137:360159  
TITLE: Electrochromic devices  
INVENTOR(S): Kathiramanathan, Poopathy  
PATENT ASSIGNEE(S): Elam-T Limited, UK  
SOURCE: PCT Int. Appl., 54 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002090465	A1	20021114	WO 2002-GB2092	20020507 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, T2, UG, ZM, ZW, AI, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, FI, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002253374	A1	20021118	AU 2002-253374	20020507 <--
GB 2001-10995 A 20010504				
GB 2001-11000 A 20010504				
WO 2002-GB2092 W 20020507				

AB Electrochromic devices are described which comprise a first Si electrode (anode), a layer of an electrochromic compound comprising a metal chelate, and a cathode; preferably there is a layer of a hole-transporting material between the anode and the electrochromic compound and a layer of an electron-transporting material between the electrochromic compound and the silicon electrode. The metal chelate may be a mixed metal chelate. The cathode is preferably a low work function metal selected from aluminum, calcium, lithium, silver/magnesium alloys and rare earth metal alloys.

IT 156882-92-7  
RL: DEV (Device component use); USES (Uses)  
(electrochromic devices with silicon anodes and metal chelate-containing active layers)  
RN 156882-92-7 CAPLUS  
CN Terbium, [P,P-diphenyl-N-(triphenylphosphoranylidene)phosphinic amide-ko]tris(2,2,6,6-tetramethyl-3,5-heptanedionato-ko,ko')- (9CI) (CA INDEX NAME)



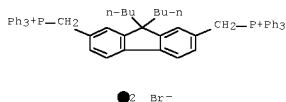
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 46 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:661440 CAPLUS Full-text  
DOCUMENT NUMBER: 137:330597  
TITLE: Electrochromic Properties of Systematically Derivatized Organic Chromophores Containing Electron Donor and Acceptor Groups

AUTHOR(S): Patra, Amitava; Fan, Michael; Friend, Christopher S.; Lin, Tzu-Chau; Cartwright, Alexander N.; Frasad, Paras N.; Burzynski, Ryszard  
CORPORATE SOURCE: Institute for Lasers Photonics and Biophotonics, Departments of Chemistry and Electrical Engineering, The State University of New York, University at Buffalo, Buffalo, NY, 14260, USA  
SOURCE: Chemistry of Materials (2002), 14(10), 4044-4048  
CODEN: CMATEX; ISSN: 0897-4756  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB We present electrochromic (EL) properties of new blue-green organic dyes. The mol. structures of these dyes are based on 2,7-divinyl-9,9-bis(tert-butyl)fluorene, a  $\pi$ -electron bridge, end-capped with electron donor (D) and/or electron acceptor (A) group(s) to form D- $\pi$ -A, D- $\pi$ -D, and A- $\pi$ -A structures. The donor group is a triphenylamine, and the acceptor group is a diphenyloxadiazoole. We studied EL properties of these dyes in a single-layer EL device having the following structure: ITO/EVK:DYE/Ca/Al. We found that both the wavelength of maximum emission and the threshold of EL depend on the structure and the concentration of the dye. Among the structure reported here, the D- $\pi$ -A dye shows the highest EL performance, exhibiting a brightness of 498 cd/m<sup>2</sup> at an applied voltage of 25 V.

IT 473700-70-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electrochromic devices of systematically derivatized organic chromophores containing electron donor and acceptor groups synthesized using)  
RN 473700-70-8 CAPLUS  
CN Phosphonium, [(9,9-dibutyl-9H-fluorene-2,7-diyl)bis(methylene)]bis(triphenyl-, dibromide (9CI) (CA INDEX NAME)

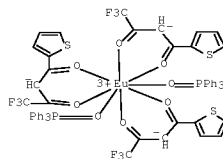


OS.CITING REF COUNT: 23 THERE ARE 23 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)  
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 47 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:632126 CAPLUS Full-text  
DOCUMENT NUMBER: 137:301819  
TITLE: Growth and characterization of OLEDs with europium complex as emission layer  
AUTHOR(S): Reyes, R.; da Silva, C. F. B.; de Brito, H. F.; Cremona, M.  
CORPORATE SOURCE: Departamento de Fisica, Pontificia Universidade Catolica do Rio de Janeiro, PUC-Rio, Brazil  
SOURCE: Brazilian Journal of Physics (2002), 32(2B), 535-539  
CODEN: BJPHE6; ISSN: 0103-9733  
PUBLISHER: Sociedade Brasileira de Fisica  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The growth and the characterization of red emitting triple-layer electrochromic organic devices using vacuum deposited (Eu(ITA)3(TPPO)2) Eu complex as emitting layer are described. The observed electrochromic (EL) is characteristic of the Eu<sup>3+</sup> emission. In this device the hole transport layer is obtained using a thin film of 1-(3-methylphenyl)-1,2,3,4-tetrahydroquinoline-6-carboxaldehyde-1,1'-diphenylhydrazones (MTCO), while the tris(8-hydroxyquinolino)aluminum (Alq3) is used as electron transport layer (ETL).

IT 12121-29-8  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
(growth and characterization of organic LEDs with emission layer of)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-ko1,ko3]bis(triphenylphosphine oxide-ko)- (CA INDEX NAME)

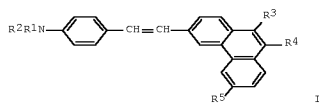


OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)  
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 48 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:609614 CAPLUS Full-text  
DOCUMENT NUMBER: 137:161463  
TITLE: Aminoarylphenanthrenes having high luminance for red-emitting organic electrochromic devices, their intermediates, and their preparation  
INVENTOR(S): Ichimura, Mari; Ishibashi, Tadashi; Tamura, Shinichiro  
PATENT ASSIGNEE(S): Sony Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 37 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002226722	A	20020814	JP 2001-21006	20010130 <--
JP 4158078	B2	20081001	JP 2001-21006	20010130

PRIORITY APPLN. INFO.: MARPAT 137:161463  
OTHER SOURCE(S): GI

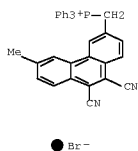


AB Aminostyrylphenanthrenes shown as I [R1 = (substituted) aryl; R2 = unsubstituted aryl; R3-R5 = H, cyano, hydrocarbyl, etc.] are prepared by condensation of 4-(N,N-diarylamino)benzaldehydes with phosphonic acid esters and/or phosphonium which are prepared by reacting halogenated phenanthrenes (prepared from phenanthrenes and N-halogenated succinimides) with trialkyl phosphites or PPh3. I are useful for organic electroluminescent material which emit red lights whose maximum emission wavelength can be varied based on substituents introduced to the structures. Moreover, I has high-m.p., good heat resistance, enhanced elec., thermal, or chemical stabilities, are amorphous which easily give glass states, and are sublimable and hence formation of amorphous films by vapor deposition is easy.

IT 443236-92-0P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of aminostyrylphenanthrenes having high luminance for red-emitting organic EL materials)

RN 445256-92-8 CAPLUS

CN Phosphonium, [(9,10-dicyano-6-methyl-3-phenanthrenyl)methyl]triphenyl-, bromide (1:1) (CA INDEX NAME)



IT 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of aminostyrylphenanthrenes having high luminance for red-emitting organic EL materials)

RN 603-35-0 CAPLUS

CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L6 ANSWER 49 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:379086 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 137:185916  
TITLE: Synthesis and properties of new electroluminescent polymers possessing both hole and electron-transporting units in the main chain

AUTHOR(S): Kim, Sang Woo; Shim, Sang Chul; Jung, Byung-Jun; Shim, Hong-Ku  
CORPORATE SOURCE: Center for Molecular Design and Synthesis, School of Molecular Science-BK21, Department of Chemistry, Korea Advanced Institute of Science and Technology, Yuseong-Gu, Taejeon, 305-701, S. Korea  
SOURCE: Polymer (2002), 43(15), 4297-4305  
CODEN: POLMAG; ISSN: 0032-3861  
PUBLISHER: Elsevier Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB New EL polymers possessing both hole and electron-transporting units in the main chain are synthesized. The polymer prepared by palladium catalyzed Heck reaction of 10 and 15 show a large weight average mol. weight (Mw) (25,000) and small polydispersity index (PDI) (1.2). The oligomers synthesized by Wittig condensation have Mw of 4000 and PDI of 1.8. All the polymer and oligomers synthesized exhibit remarkable thermal stability with high decomposition temperature and high Tg as determined by thermal gravimetric anal. (TGA) and differential scanning calorimetry (DSC) under nitrogen atmosphere. The EL emission maximum peaks of the materials prepared are in the range of 535-560 nm corresponding to green-yellowish-green. Among the three electron-transporting moieties, the 1,3,4-oxadiazole unit shows the best electron injection and transporting property.

IT 450944-95-3P 450944-91-9P  
RL: PRE (Properties); SPN (Synthetic preparation); PREP (Preparation) (electroluminescent polymers possessing both hole and electron-transporting units in the main chain)

RN 450944-95-3 CAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[[4-[(2-ethylhexyl)oxy]phenyl]imino]bis(benzaldehyde)] (9CI) (CA INDEX NAME)



CM 1  
CRN 437769-71-6  
CMF C28 H31 N O3

CM 2  
CRN 221615-56-1  
CMF C52 H42 N2 O P2 . 2 Br

(monomer synthesis; electroluminescent polymers possessing both hole and electron-transporting units in the main chain)

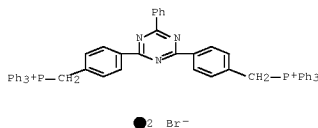
RN 603-35-0 CAPLUS

CN Phosphine, triphenyl- (CA INDEX NAME)

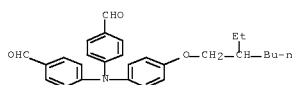


IT 450944-97-5 CAPLUS  
CN Phosphonium, [(6-phenyl-1,3,5-triazine-2,4-diyl)bis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[[4-[(2-ethylhexyl)oxy]phenyl]imino]bis(benzaldehyde)] (9CI) (CA INDEX NAME)

CM 1  
CRN 450944-91-9  
CMF C59 H47 N3 P2 . 2 Br



CM 2  
CRN 437769-71-6  
CMF C28 H31 N O3



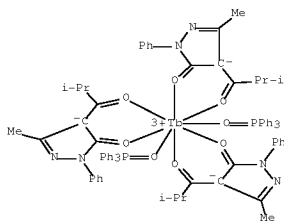
IT 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)

OS.CITING REF COUNT: 29 THERE ARE 29 CAPLUS RECORDS THAT CITE THIS RECORD (29 CITINGS)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS



RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 50 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:259760 CAPLUS Full-text  
DOCUMENT NUMBER: 137:12523  
TITLE: Blue organic electroluminescent devices based on a distyrylarylene derivative as emitting layer and a terbium complex as electron-transporting layer  
AUTHOR(S): Huang, Ling; Tian, He; Li, Fu-You; Gao, De-Qing; Huang, Yan-Yi; Huang, Chun-Hui  
CORPORATE SOURCE: Peking University, State Key Laboratory of Rare Earth Materials Chemistry and Applications, Beijing, 100871, Peop. Rep. China  
SOURCE: Journal of Luminescence (2002), 97(1), 55-59  
CODEN: JLUHAS; ISSN: 0022-2313  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB With a blue distyrylarylene derivative, 4,4'-bis(2,2-di(2-methoxyphenyl)ethenyl)-1,1'-biphenyl as emitting material, double-layer and triple-layer electroluminescent (EL) devices were fabricated. For the device using tris(1-phenyl-3-Me-4-isobutyl-5-pyrazolonato)bis(triphenylphosphine oxide)terbium (Tb(FMP)3(TPFO)2) as the electron-transporting layer, blue EL emission with a maximum luminance of 253 cd/m2 was achieved at 19 V. The difference of Tb(FMP)3(TPFO)2 and tris(8-hydroxyquinolino)aluminum as the electron-transporting materials in these devices were compared and discussed.  
IT 207351-75-5  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(blue electroluminescent devices based on distyrylarylene derivative as emitting layer and electron-transporting layer of)  
RN 207351-75-5 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-kO)propyl]-2-phenyl-3H-pyrazol-3-onato-kO3]bis(triphenylphosphine oxide-kO)- (CA INDEX NAME)



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)  
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT  
L6 ANSWER 51 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:142641 CAPLUS Full-text  
DOCUMENT NUMBER: 136:191499  
TITLE: Hydrocarbon compound for organic electroluminescent elements and using them  
INVENTOR(S): Ishida, Tautomu; Shimamura, Takehiko; Totani, Yoshiyuki; Nakatsuka, Masakatsu  
PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan  
SOURCE: PCT Int. Appl., 251 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

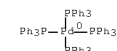
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002014244	A1	20020221	WO 2001-JP6920	20010810 <--
W: KR, US				
FW: DE, FR, NL				
JP 2002154993	A	20020528	JP 2001-243306	20010810 <--
EP 1221434	A1	20020710	EP 2001-955670	20010810 <--
R: DE, FR, NL				
TW 290546	B	20071201	TW 2001-90119621	20010810 <--
US 20030087126	A1	20030508	US 2002-110241	20020410 <--
US 6929870	B2	20050816		
US 20050074631	A1	20050407	US 2004-930874	20040901 <--
US 7166240	B2	20070123		
PRIORITY APPLN. INFO.:			JP 2000-242476	A 20000810
			JP 2000-268568	A 20000905
			JP 2000-24276	A 20000810
			WO 2001-JP6920	W 20010810
			US 2002-110241	A3 20020410

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 136:191499

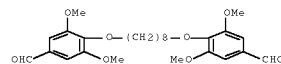
AB Title electroluminescent elements comprise one pair of electrodes and pinched between the electrodes,  $\geq 1$  layer(s) containing  $2l$  novel hydrocarbon compound in a general formula  $X1(F1)j(A1)k(F2)l(A2)m(F3)nx2$  [ $A1-2 = H$ , halo, straight, branched or cyclic alkyl, alkoxy, amino, aryl, or (un)substituted amino, aryl or aralkyl,  $j,m,n = 0, 1; k,l = 1, 2$ ] having an anthracene ring and a fluorene ring which are directly bonded with each other. The compound can be suitably used for preparing an organic electroluminescent element being excellent in luminous efficiency and having a long luminous life.

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
RL: DEV (Device component use); USES (Uses)  
(preparation of hydrocarbon compound for organic electroluminescent devices)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

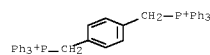


OS.CITING REF COUNT: 13 THERE ARE 13 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 52 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:33246 CAPLUS Full-text  
DOCUMENT NUMBER: 136:279773  
TITLE: Synthesis and electroluminescent studies of blue-emitting copolymers containing phenylene vinylene and oxadiazole moieties in the main chain  
AUTHOR(S): Zheng, Min; Ding, Liming; Gurel, E. Elif; Karasz, Frank E.  
CORPORATE SOURCE: Department of Polymer Science & Engineering, Conte Center for Polymer Research, University of Massachusetts, Amherst, MA, 01003, USA  
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2001), Volume Date 2002, 40(2), 235-241  
CODEN: JPACEC; ISSN: 0887-624X  
PUBLISHER: John Wiley & Sons, Inc.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Two statistical copolymers III and IV combining features of the two reference polymers I and II were synthesized by a Wittig reaction with the objective of raising the electroluminescent properties and fluorescence quantum yields relative to the alternating block copolymers I and II. The electroluminescent properties of single-layer LEDs using these copolymers were studied. External quantum efficiencies of 0.035 and 0.11% were obtained from single-layer devices on the basis of III and IV, resp., which are higher than those of similar devices using I and II. Two single-layer LEDs using a blend of I and II (4:1 and 1:1 wt/wt) corresponding to the compns. of copolymers III and IV, resp., were also fabricated for comparison. Results indicated that the covalent incorporation of oxadiazole is effective in improving the efficiency of LEDs and that the molar content of oxadiazole plays an important role in the performance of the devices.  
IT 146284-85-7  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(synthesis and electroluminescent studies of blue-emitting copolymers containing phenylene vinylene and oxadiazole moieties in the main chain)  
RN 146284-85-7 CAPLUS  
CN Phosphonium, 1,1'-[1,4-phenylenebis(methylene)]bis[1,1,1-triphenyl-, chloride (1:2), polymer with 4,4'-[1,8-octanediy]bis(oxy)]bis[3,5-dimethoxybenzaldehyde] (CA INDEX NAME)  
CM 1  
CRN 146119-99-5  
CME C26 H34 O8

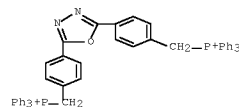


CM 2  
CRN 1519-47-7  
CME C44 H38 P2 . 2 Cl

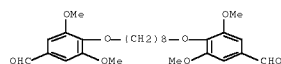


RN 347895-37-8 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediy]bis(oxy)]bis[3,5-dimethoxybenzaldehyde] (9CI) (CA INDEX NAME)

CM 1  
CRN 221615-56-1  
CME C52 H42 N2 O P2 . 2 Br



CM 2  
CRN 146119-99-5  
CME C26 H34 O8



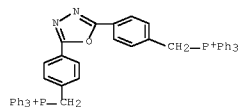
II 405511-85-58  
RL: FRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis and electroluminescent studies of blue-emitting copolymers containing phenylene vinylene and oxadiazole moieties in the main chain)

RN 405511-85-5 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis(triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediylbis(oxy)]bis[3,5-dimethoxybenzaldehyde] and [1,4-phenylenebis(methylene)]bis(triphenylphosphonium) dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

CMF C52 H42 N2 O P2 . 2 Br

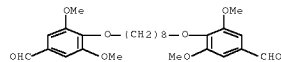


●2 Br<sup>-</sup>

CM 2

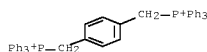
CRN 146119-99-5

CMF C26 H34 O8



CM 3

CRN 1519-47-7  
CMF C44 H38 P2 . 2 Cl



●2 Cl<sup>-</sup>

OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)  
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 53 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:13213 CAPLUS Full-text  
DOCUMENT NUMBER: 136:45351  
TITLE: Fully-conjugated organic electroluminescent polymers containing oxadiazolyl group and their preparation  
INVENTOR(S): Song, In Seong; Shim, Hong Ku; Jang, Min Sik; Song, Seung Yong  
PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea  
SOURCE: Repub. Korean Kongkae Taebo Kongbo, No pp. given  
CODEN: KRXXA7  
DOCUMENT TYPE: Patent  
LANGUAGE: Korean  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

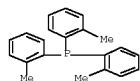
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2000009219	A	20000215	KR 1998-29490	19980722 <--
PRIORITY APPLN. INFO.:			KR 1998-29490	19980722

AB An electroluminescent polymer containing oxadiazolyl group is prepared and described which has a good electron transport, thermal stability and instantaneous brightness. The oxadiazole deriva. may contain an aliphatic alkyl, aliphatic alkoxy, of branched alkyl substituents and are prepared by binding of bis(2-bromo-5-hexyloxybenzyl)-1,3,4- oxadiazole and p-divinylbenzene. Thus, 9.2 g of bis(2-bromo-5-hexyloxybenzyl)hydrazine is reacted with 30 mL of POC13 at 70 °C for 30 h to give bis(2-bromo-5-hexyloxybenzyl)-1,3,4- oxadiazole. The obtained 0.7 g of bis(2-bromo-5-hexyloxybenzyl)-1,3,4-oxadiazole and 0.155 g of p-divinylbenzene are reacted at 100 °C for 40 h in the presence of Pd(OAc)2, tri-o-tolylphosphine and triethylamine to give the title polymer.

IT 6163-58-2, Tri-o-tolylphosphine  
RL: CAT (Catalyst use); USES (Uses)  
(ligand; fully-conjugated organic electroluminescent polymers containing oxadiazolyl group and preparation using)

RN 6163-58-2 CAPLUS

CN Phosphine, tris(2-methylphenyl)- (CA INDEX NAME)



L6 ANSWER 54 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:866148 CAPLUS Full-text  
DOCUMENT NUMBER: 136:135116  
TITLE: Synthesis and luminescent properties of blue light emitting polymers containing both hole and electron transporting units  
AUTHOR(S): Ahn, Taek; Shim, Hong-Ku  
CORPORATE SOURCE: Center for Advanced Functional Polymers, Department of Chemistry and School of Molecular Science (BK21), Korea Advanced Institute of Science and Technology, Taejeon, 305-701, S. Korea  
SOURCE: Macromolecular Chemistry and Physics (2001), 202(16), 3180-3188  
CODEN: MCHPES; ISSN: 1022-1352  
PUBLISHER: Wiley-VCH Verlag GmbH  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Poly[(oxy-4,4'-octa-fluoro biphenyl-oxy)-1,4-phenylenevinylene-2-methoxy-5-(2-ethylhexyl-oxy)-1,4-phenylenevinylene-1,4-phenylene], POFB-MEH-PPV, poly[(oxy-4,4'-octa-fluoro biphenyl-oxy)-1,4-phenylenevinylene-9,9-dihexyl-2,7-fluorene diyl-vinylene-1,4-phenylene], POFB-PF, and poly[(oxy-4,4'-octa-fluoro biphenyl-oxy)-1,4-phenylenevinylene-N-ethylhexyl-3,6-carbazole vinylene-1,4-phenylene], POFB-PK, were synthesized by the well-known Wittig condensation polymerization. We incorporated the high electron affinity (octa-fluoro biphenyl) and hole-transporting (carbazole, fluorene, and dialkoxy phenyl) units into the conjugated main chain. The conjugation lengths are limited to the blue-emission region by ether linkage. The resulting polymers were completely soluble in common organic solvents such as chloroform, 1,2-dichloroethane, and cyclohexanone, and exhibited good thermal stability up to 300°C. The synthesized polymers showed UV-visible absorbance and photoluminescence (PL) in the ranges of 350-385 nm and 460-490 nm, resp. The fluorene or carbazole containing POFB-PF and POFB-PK showed blue photoluminescence peaks at 470 and 460 nm, resp. The single-layer light-emitting diode was fabricated in a configuration of ITO (indium-tin oxide)/polymer/Al. Electroluminescence (EL) emission of POFB-PF and POFB-PK were shown at 475 and 458 nm, resp., corresponding to the pure blue emissions. And, a dialkoxy-PH containing POFB-MEH-PPV showed greenish blue light at 494 nm. But, LED devices from synthesized polymers showed poor device performance and high turn on voltage. So, we fabricated light-emitting diodes (LEDs) from blend polymers composed of poly[2-methoxy-5-(2-ethylhexyl-oxy)-1,4-phenylenevinylene] (MEH-PPV) and POFB-MEH-PPV (POFB-PF or POFB-PK) as the emitting layers. The EL emission maxima of each blend polymers were in the range of 573-591 nm, which indicates that the emission is mainly due to MEH-PPV and POFB-MEH-PPV (POFB-PF or POFB-PK) contributes to the enhancement of the luminescence. And each blend polymers exhibited higher EL quantum efficiency compared with MEH-PPV at the same c.d.

II 352354-14-46 352354-16-6P 352354-18-2P

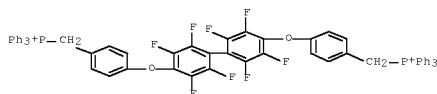
RL: POF (Polymer in formulation); FRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(blue light emitting polymers containing both hole and electron transporting units)

RN 352354-14-4 CAPLUS  
CN Phosphonium, [(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis(oxy-4,1-phenylenemethylene)]bis(triphenyl-, dibromide, polymer with 2-[(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 352354-13-3

CMF C62 H42 F8 O2 P2 . 2 Br

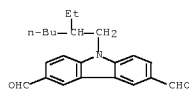


●2 Br<sup>-</sup>

CM 2

CRN 169051-20-1

CMF C22 H25 N O2



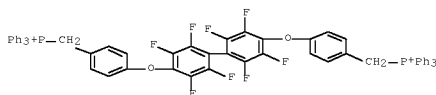
RN 352354-16-6 CAPLUS

CN Phosphonium, [(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis(oxy-4,1-phenylenemethylene)]bis(triphenyl-, dibromide, polymer with 2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 352354-13-3

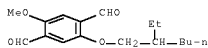
CMF C62 H42 F8 O2 P2 . 2 Br



● 2 Br<sup>-</sup>

CM 2

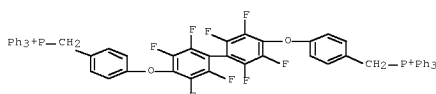
CRN 203251-22-3  
CME C17 H24 O4



RN 352354-18-8 CAPLUS  
CN Phosphonium, [(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis(oxy-4,1-phenylenemethylene)]bis(triphenyl-, dibromide, polymer with 9,9-dihexyl-9H-fluorene-2,7-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

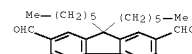
CRN 352354-13-3  
CME C62 H42 F8 O2 P2 . 2 Br



● 2 Br<sup>-</sup>

CM 2

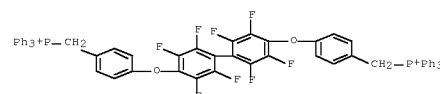
CRN 295796-57-5  
CME C27 H34 O2



IT 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(blue light emitting polymers containing both hole and electron transporting units)  
RN 603-35-0 CAPLUS  
CN Phosphine, triphenyl- (CA INDEX NAME)



IT 352354-13-3  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(blue light emitting polymers containing both hole and electron transporting units)  
RN 352354-13-3 CAPLUS  
CN Phosphonium, [(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis(oxy-4,1-phenylenemethylene)]bis(triphenyl-, dibromide (9CI) (CA INDEX NAME)



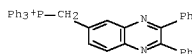
● 2 Br<sup>-</sup>

OS.CITING REF COUNT: 36 THERE ARE 36 CAPLUS RECORDS THAT CITE THIS RECORD (37 CITINGS)  
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 55 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:664793 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 136:6717  
TITLE: Synthesis and device characterisation of side-chain polymer electron transport materials for organic semiconductor applications  
AUTHOR(S): Dailey, Stuart; Feast, W. James; Pearce, Richard J.; Sage, Ian C.; Till, Stephen; Wood, Emma L.

CORPORATE SOURCE: E911, DERA Malvern, Great Malvern, WR14 3PS, UK  
SOURCE: Journal of Materials Chemistry (2001), 11(9), 2238-2243  
CODEN: JMACEP; ISSN: 0959-9428  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Improved syntheses and polymers. are reported of monomers bearing electron transporting substituents based on 2,5-diphenyloxazole and 2,3-diphenylquinoxaline attached directly to a vinyl group. By copolym. and by use of mixts. of homopolymers, these materials have been incorporated into light emitting polymer devices in which hole conduction properties are provided by 4-vinyltriphenylamine groups. High luminescence efficiency is achieved by use of a fluorescent additive. The resulting devices show narrow emission bands and high brightnesses, except in the case of those based on a diphenyloxazole-triphenylamine polymer blend. Thermal anal. data are equivocal but we present evidence that in this system, but not the quinoxaline blend, phase separation occurs. The minority charge carrying capacity of the homopolymers is probed: it is shown that the quinoxaline derivative has hole blocking properties superior to those of the oxadiazole polymer and is a good candidate for use in optimized devices.

IT 302345-33-9  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(synthesis of side-chain polymer electron transport materials for organic semiconductor applications)  
RN 308145-35-9 CAPLUS  
CN Phosphonium, [(2,3-diphenyl-6-quinoxaliny)methyl]triphenyl-, bromide (1:1) (CA INDEX NAME)



● Br<sup>-</sup>

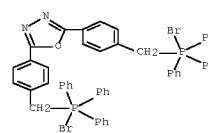
OS.CITING REF COUNT: 77 THERE ARE 77 CAPLUS RECORDS THAT CITE THIS RECORD (78 CITINGS)  
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 56 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:662043 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:358437  
TITLE: Photoluminescence and electroluminescence of blue-green light emitting oxadiazole-containing polymers  
AUTHOR(S): Zheng, Min; Ding, Liming; Guerel, E. Elif; Lahti, Paul M.; Karasz, Frank E.  
CORPORATE SOURCE: Department of Polymer Science & Engineering and Department of Chemistry, University of Massachusetts, Amherst, MA, 01003, USA  
SOURCE: Polymer Preprints (American Chemical Society, Division

of Polymer Chemistry) (2001), 42(2), 280-281  
CODEN: ACPPAY; ISSN: 0032-3934  
American Chemical Society, Division of Polymer Chemistry  
DOCUMENT TYPE: Journal; (computer optical disk)  
LANGUAGE: English  
AB A series of segmented copolymers containing oxadiazole groups in the conjugated main chain were synthesized with the objective of raising the electron transport ability. The copolymers consist of alternating blocks of rigid chromophores containing oxadiazole units together with flexible spacer segments and were prepared via Wittig condensation followed by isomerization. The effects of chromophore substituents on the optical properties of the copolymers were studied. The emission spectra of the polymers in different solvents were studied. A strong solvatochromic effect as function of solvent polarity was observed in Oxa-I and Oxa-III, indicating intramol. charge transfer within the excited state. The electroluminescence characteristics of the polymers were also studied, toward use in single layer LEDs.  
IT 372968-14-4  
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation) (chromophore substituent effects on luminescence of blue-green light emitting oxadiazole-polyphenylenevinylene conjugated polymers)  
RN 372968-14-4 CAPLUS  
CN Benzaldehyde, 4,4'-[1,8-octanediy]bis(oxy)bis[3,5-dimethoxy-, polymer with 2,5-bis[4-(bromotriphenylphosphoranyl)methyl]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

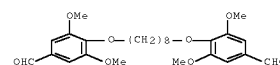
CM 1

CRN 372968-13-3  
CME C52 H42 Br2 N2 O P2



CM 2

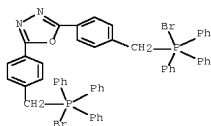
CRN 146119-99-5  
CME C26 H34 O8



RN 372968-16-6 CAPLUS  
CN Benzaldehyde, 4,4'-[1,8-octanediylbis(oxy)]bis[3,5-dimethyl-, polymer with 2,5-bis[4-[(bromotriphenylphosphoranyl)methyl]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

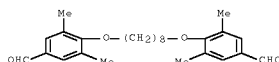
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CRN 372968-13-3  
CMF C52 H42 Br2 N2 O P2



CM 2

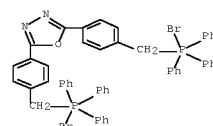
CRN 297155-61-4  
CMF C26 H34 O4



RN 372968-19-9 CAPLUS  
CN Benzaldehyde, 4,4'-[1,8-octanediylbis(oxy)]bis[3-ethoxy-, polymer with 2,5-bis[4-[(bromotriphenylphosphoranyl)methyl]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

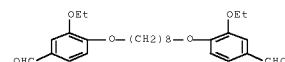
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CRN 372968-13-3  
CMF C52 H42 Br2 N2 O P2



CM 2

CRN 297155-64-7  
CMF C26 H34 O6



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

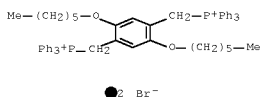
L6 ANSWER 57 OF 109 CAPLUS COPYRIGHT 2010 ACS on STM  
ACCESSION NUMBER: 2001:661994 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:358431  
TITLE: Electroluminescence and photoluminescence of poly(m-phenylenevinylene)-alt-(p-phenylenevinylene) light emitting copolymers  
AUTHOR(S): Guerel, E. Elif; Pang, Yi; Karasz, Frank E.  
CORPORATE SOURCE: Department of Polymer Science and Engineering, University of Massachusetts, Amherst, MA, 01003, USA  
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(2), 185-186  
CODEN: ACPEAY; ISSN: 0032-3934  
PUBLISHER: American Chemical Society, Division of Polymer Chemistry  
DOCUMENT TYPE: Journal; (computer optical disk)  
LANGUAGE: English  
AB In our previous work, we have reported the synthesis of new poly(m-phenylenevinylene)-alt-(p-phenylenevinylene) copolymers with butoxy or hexoxy side chains. These green light emitting copolymers showed high FL efficiencies which could be attributed to the presence of the m-phenylene unit. In this study, we have investigated electroluminescence and photoluminescence of these copolymers with two different alkoxy chains and compared the efficiency and stability of the devices in single and double layer configurations. The results indicate that we can enhance electroluminescence substantially by using the multi-component blend approach, and by blending the green light emitting copolymers with hole and electron

transport materials, poly(N-vinylcarbazole), PVK, and [2-(4-biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole] (butyl-PBD), resp.  
229494-70-8 229494-72-8  
RL: PRP (Properties)  
(electro- and photoluminescence of poly(phenylenevinylene) alternating copolymers)

RN 229494-70-6 CAPLUS  
CN Phosphonium, [(2,5-bis(hexyloxy)-1,4-phenylene)bis(methylene)]bis[triphenyl-, dibromide, polymer with 1,3-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

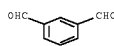
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CRN 165377-28-6  
CMF C56 H62 O2 P2 . 2 Br



CM 2

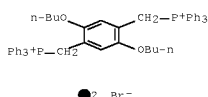
CRN 626-19-7  
CMF C8 H6 O2



RN 229494-72-8 CAPLUS  
CN Phosphonium, [(2,5-dibutoxy-1,4-phenylene)bis(methylene)]bis[triphenyl-, dibromide, polymer with 1,3-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

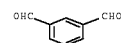
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CRN 229494-69-3  
CMF C52 H54 O2 P2 . 2 Br



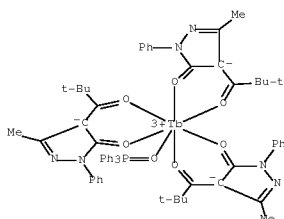
CM 2

CRN 626-19-7  
CMF C8 H6 O2



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 58 OF 109 CAPLUS COPYRIGHT 2010 ACS on STM  
ACCESSION NUMBER: 2001:644388 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:378319  
TITLE: Efficient single layer organic light emitting diodes based on a terbium pyrazolone complex  
AUTHOR(S): Moon, D. G.; Salata, O. V.; Etchells, M.; Dobson, P. J.; Christou, V.  
CORPORATE SOURCE: Department of Materials, University of Oxford, Oxford, Yarnston, OX5 1PF, UK  
SOURCE: Synthetic Metals (2001), 123(2), 355-357  
CODEN: SYMDEZ; ISSN: 0379-6779  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Single layer devices of an organolanthanide complex, Tb tris-(1-phenyl-3-methyl-4-(tertiarybutyl)pyrazol-5-one)triphenylphosphine oxide [(tb-PMP)3Tb(Ph3PO)], were made to study light emission and current transporting properties. Ca and Mg layers were used for the cathode contact. A higher c.d. at much lower voltages can be attained with a Ca cathode because of enhanced electron injection. The maximum brightness of a single layer device with a Ca cathode was 226 cd/m2 at 18 V and the best electroluminescence (EL) efficiency was 0.67 cd/A at 14 V and 70 cd/m2.  
IT RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(efficient single layer organic light emitting diodes based on terbium pyrazolone complex)  
RN 333724-64-4 CAPLUS  
CN Terbium, tris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS RECORD (22 CITINGS)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 59 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:627716 CAPLUS Full-text  
 DOCUMENT NUMBER: 135:344864  
 TITLE: Novel Efficient Blue Fluorescent Polymers Comprising Alternating Phenylene Pyridine Repeat Units: Their Syntheses, Characterization, and Optical Properties  
 AUTHOR(S): Ng, Siu-Choon; Lu, Hong-Fang; Chan, Hardy S. O.; Fujii, Akihiko; Laga, Tong; Yoshino, Katsumi  
 CORPORATE SOURCE: Department of Chemistry, National University of Singapore, 119260, Singapore  
 SOURCE: Macromolecules (2001), 34(20), 6895-6903  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A series of poly(2,5-dialkoxy-1,4-phenylene-alt-2,5-pyridine)s functionalized with alternating donor/acceptor repeat units was synthesized via Suzuki coupling and characterized by FTIR, NMR (13C and 1H), UV-vis, fluorescence spectroscopy, gel permeation chromatog., and thermal analyses. The functionalized polyphenylene-pyridines were soluble in common organic solvents and trifluoroacetic acid and exhibited good thermal stability. In all cases, the electronic and optical properties of the polymers were consistent with a rigid-rod conjugated structure. The polymers emitted intense blue light under UV irradiation in both the film and solution phases with high quantum yields. Single-layer blue light-emitting diode test structures were fabricated using the polymers as emitting layer. The efficient electrochem. n-doping mechanism and electron transport properties of the polymers were studied and are attributed to the presence of the electron-withdrawing pyridinyl unit. The polymers displayed bathochromic shift when protonated with trifluoroacetic acid in chloroform solns. The surface morphol. of polymer films cast from chloroform and chloroform/trifluoroacetic acid mixts. was studied from scanning electron micrographs.

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
 RL: CAT (Catalyst use); USES (Uses)  
 (Suzuki coupling polymerization catalyst; preparation via Suzuki coupling)

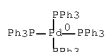
OS.CITING REF COUNT: 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS RECORD (20 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 61 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:36970 CAPLUS Full-text  
 DOCUMENT NUMBER: 135:181052  
 TITLE: Synthesis and electroluminescence of poly(aryleneethynylene)s based on fluorene containing hole-transport units  
 AUTHOR(S): Zhan, Xiaowei; Liu, Yungqi; Yu, Gui; Wu, Xia; Zhu, Daoben; Sun, Runqiang; Wang, Daik; Epstein, Arthur J.  
 CORPORATE SOURCE: Institute of Chemistry, Center for Molecular Science, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Journal of Materials Chemistry (2001), 11(6), 1606-1611  
 CODEN: JMACEP; ISSN: 0959-9428  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A series of light-emitting poly(arylene ethynylene)s (PAE) based on fluorene with sterically hindered substituents containing hole transport units such as tetraphenyldiaminobiphenyl, carbazole, and thiophene and the non-planar unit binaphthyl, were synthesized by palladium-catalyzed coupling reaction. The introduction of hole transport moieties into the PAE main chain improved the luminescence properties of PAE polymers. The electronic structure and photo- and electroluminescent (EL) properties of these polymers can be manipulated by simply varying the nature of the co-units in the polymeric chain. The spectral emission varies from greenish-blue to green or yellowish-green, depending on the composition of the copolymers. A single-layer test device, light-emitting diode (LED) prepared from poly[2,7-diethynyl-9,9-bis(2-ethylhexyl)fluorene]-alt-[N,N'-diphenyl-N,N'-bis(4-phenyl)-1,1'-biphenyl-4,4'-diamine] (TPD-PFE) using an aluminum electrode emits green light (510 nm) with an EL external quantum efficiency of 0.007% and a brightness of 30 cd m<sup>-2</sup> at a bias voltage of 27 V and a c.d. of 420 mA cm<sup>-2</sup>. An EL external quantum efficiency of 0.06% can be obtained from a blue-emitting double-layer LED with the structure of ITO/TPD-PFE/2-(2-hydroxyphenyl)pyridylberyllium/LiF/AlI<sub>3</sub> at a c.d. of 38 mA cm<sup>-2</sup>.

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
 RL: CAT (Catalyst use); USES (Uses)  
 (coupling polymerization catalyst; preparation and electroluminescence and redox potential of light-emitting poly(arylene ethynylene)s with diaminobiphenyl and carbazole and thiophene hole transport units)

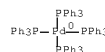
RN 14221-01-3 CAPLUS  
 CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS RECORD (33 CITINGS)

and electrochem. and optical properties of blue fluorescent poly(alkoxyphenylene pyridine) conjugated polymers)

RN 14221-01-3 CAPLUS  
 CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



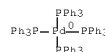
OS.CITING REF COUNT: 34 THERE ARE 34 CAPLUS RECORDS THAT CITE THIS RECORD (34 CITINGS)

REFERENCE COUNT: 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 60 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:376181 CAPLUS Full-text  
 DOCUMENT NUMBER: 135:202166  
 TITLE: A thermally stable greenish blue organic electroluminescent device using a novel emitting amorphous molecular material  
 AUTHOR(S): Okumoto, K.; Ohara, T.; Noda, T.; Shirota, Y.  
 CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Osaka University, Yamadaoka, Suita, Osaka, 565-0871, Japan  
 SOURCE: Synthetic Metals (2001), 121(1-3), 1655-1656  
 CODEN: SYMDEZ; ISSN: 0379-6779  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A novel emitting amorphous mol. material with a high glass-transition temperature of 158 °C, 2,5-bis[4-(bis-(9,9-dimethyl-2-fluorenyl)amino)phenyl]thiophene (BFA-IT), has been developed. BFA-IT emits greenish blue light with relatively high fluorescence quantum yield of 0.48 in solution. A multilayer organic electroluminescent device using BFA-IT emitted greenish blue light with a maximum luminance of 12350 cd m<sup>-2</sup> at 11 V with a luminous efficiency of 1.1 lm W<sup>-1</sup> at a luminance of 300 cd m<sup>-2</sup>. The device worked even at 170 °C.

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium(0)  
 RL: CAT (Catalyst use); USES (Uses)  
 (thermally stable greenish blue organic electroluminescent amorphous mol. material synthesized using)

RN 14221-01-3 CAPLUS  
 CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

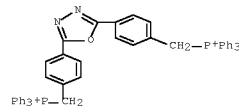


REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 62 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:320433 CAPLUS Full-text  
 DOCUMENT NUMBER: 135:77439  
 TITLE: Oxadiazole Containing Conjugated-Nonconjugated Blue and Blue-Green Light Emitting Copolymers  
 AUTHOR(S): Zheng, Min; Ding, Liming; Guerel, E. Elif; Lahti, Paul M.; Karasz, Frank E.  
 CORPORATE SOURCE: Department of Polymer Science & Engineering and Department of Chemistry, University of Massachusetts, Amherst, MA, 01003, USA  
 SOURCE: Macromolecules (2001), 34(12), 4124-4129  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A series of segmented copolymers containing oxadiazole groups in the conjugated main chain have been synthesized with the objective of raising the electron transport ability. The present copolymers consist of alternating blocks of rigid chromophores containing oxadiazole units together with flexible spacer segments. The effects of chromophore substituents on the optical properties of the copolymers were investigated. Strong solvatochromic effects were observed, indicating intramol. charge transfer in the excited states. The copolymers not only were used as blue-green electroluminescent materials but also were effective as electron transport/hole blocking layers in polymer light emitting diode architectures as a result of the introduction of electron transporting unit oxadiazole. The quantum efficiency of a single-layer device using PPV (polyphenylenevinylene) was greatly enhanced with the use of a thin film of the oxadiazole copolymer serving as an ETL (electron transport layer). At 6.8 V, a brightness of 2400 cd/m<sup>2</sup> was achieved with an external quantum efficiency of 0.094%.

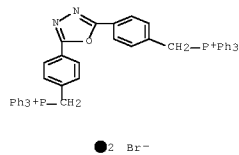
IT 321615-56-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (intermediate; preparation and optical properties of oxadiazole containing conjugated-nonconjugated blue and blue-green light emitting copolymers)

RN 221615-56-1 CAPLUS  
 CN Phosphonium, 1,1'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[1,1,1-triphenyl-, bromide (1:2) (CA INDEX NAME)

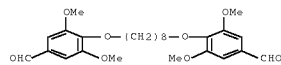


● Br -

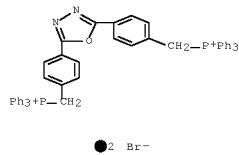
IT 347895-37-8 347895-38-9 347895-39-0  
RL: PRE (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and optical properties of oxadiazole containing  
conjugated-nonconjugated blue and blue-green light  
emitting copolymers)  
RN 347895-37-8 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-  
phenylenemethylene)]bis[triphenyl-, dibromide, polymer with  
4,4'-[1,8-octanediybis(oxy)]bis[3,5-dimethoxybenzaldehyde] (9CI) (CA  
INDEX NAME)  
CM 1  
CRN 221615-56-1  
CMF C52 H42 N2 O P2 . 2 Br



CM 2  
CRN 146119-99-5  
CMF C26 H34 O8

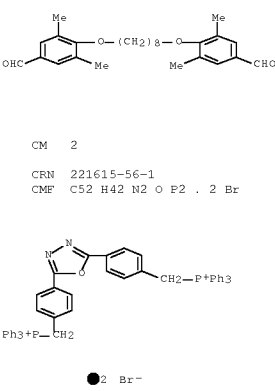


RN 347895-38-9 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-  
phenylenemethylene)]bis[triphenyl-, dibromide, polymer with  
4,4'-[1,8-octanediybis(oxy)]bis[3,5-dimethoxybenzaldehyde] (9CI) (CA  
INDEX NAME)  
CM 1  
CRN 297155-61-4  
CMF C26 H34 O4

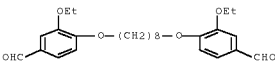


OS.CITING REF COUNT: 51 THERE ARE 51 CAPLUS RECORDS THAT CITE THIS  
RECORD (51 CITINGS)  
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

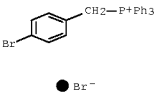
L6 ANSWER 63 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:315958 CAPLUS Full-text  
DOCUMENT NUMBER: 135:92968  
TITLE: Efficient and Bright Blue Electroluminescence  
of Poly[4,4'-biphenylene- $\alpha$ -(9'',9'')-dihexyl-3-  
fluorenyl]vinylene]  
AUTHOR(S): An, Byeong-Kwan; Kim, Yun-Hi; Shin, Dong-Cheol; Park,  
Soo Young; Yu, Han-Seong; Kwon, Soon-Ki  
CORPORATE SOURCE: Department of Polymer Science & Engineering and  
Research Institute of Industrial Technology,  
Gyeongsang National University, Jinju, 660-701, S.  
Korea  
SOURCE: Macromolecules (2001), 34(12), 3993-3997  
CODEN: MAMOEK; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A blue electroluminescent polymer, poly(biphenylenevinylene) derivative  
containing a bulky fluorenyl group, was prepared by nickel-catalyzed coupling  
of 1,2-bis(4(1-bromophenyl)-1-(9'',9'')-dihexyl-3-fluorenyl)ethene (BPBE). The  
structure and properties of the polymer, BPBEV, were studied; the polymer had  
good solubility and thermal stability. The BPBEV films showed maximum  
absorption and emission peaks at 370 and 485 nm, resp. A blue  
electroluminescence ( $\lambda_{max}$  = 465 nm) was observed with intensity of 4116 cd/m<sup>2</sup>  
for a light-emitting diode testing assembly of ITO/PEDOT/BPBEV/LiF/Al;  
maximum efficiency was 0.22 lm/W with a turn-on voltage of 4.3 V. For optimum  
ratio of BPBEV to PVK blend as 1:5, the luminance and efficiency of the diode  
reached up to 9342 cd/m<sup>2</sup> and 1.66 lm/W, resp.  
IT 51044-13-4 (4-Bromobenzyl)triphenylphosphonium bromide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and bright blue electroluminescence of  
poly[biphenylene-(dihexyl-fluorenyl)vinylene] and luminance efficiency  
of diode assemblies)  
RN 51044-13-4 CAPLUS  
CN Phosphonium, [(4-bromophenyl)methyl]triphenyl-, bromide (1:1) (CA INDEX  
NAME)



RN 347895-39-0 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-  
phenylenemethylene)]bis[triphenyl-, dibromide, polymer with  
4,4'-[1,8-octanediybis(oxy)]bis[3-ethoxybenzaldehyde] (9CI) (CA INDEX  
NAME)  
CM 1  
CRN 297155-64-7  
CMF C26 H34 O6



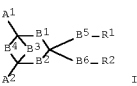
CM 2  
CRN 221615-56-1  
CMF C52 H42 N2 O P2 . 2 Br



OS.CITING REF COUNT: 47 THERE ARE 47 CAPLUS RECORDS THAT CITE THIS  
RECORD (47 CITINGS)  
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

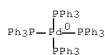
L6 ANSWER 64 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:280653 CAPLUS Full-text  
DOCUMENT NUMBER: 134:302846  
TITLE: Electroluminescence component  
INVENTOR(S): Tanaka, Hiromitsu; Mouri, Makoto; Takeuchi, Hisato;  
Tokito, Seishi  
PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories,  
Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.  
CODEN: JKKXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001110572	A	20010420	JP 2000-237442	20000804 <--
JP 4122691	B2	20080723		
US 6771111	B1	20040817	US 2000-632348	20000803 <--
PRIORITY APPLN. INFO.:			JP 1999-221653	A 19990804
OTHER SOURCE(S):			MARPAT 134:302846	



AB The invention refers to an electroluminescent device comprising two electrodes  
and an electroluminescent layer containing I [A1,2 = functional group; B1-6 =  
direct bonds or divalent functional groups; A1,2 = triphenylamine, coumarin,  
or oxadiazole derivative groups having hole and electron transport and  
luminescent properties].  
IT 51044-13-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electroluminescence component)

RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



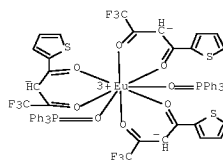
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L6 ANSWER 65 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2001:219160 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:53432  
TITLE: Energy transfer in organic electroluminescent devices  
AUTHOR(S): Wu, Zhefu; Zhang, Xianmin; Sun, Runguang; Li, Wenlian; Chen, Kangsheng  
CORPORATE SOURCE: Department of Information and Electronic Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China  
SOURCE: Bandaoti Guangdian (2004), 21(3), 163-165  
CODEN: BAGUES; ISSN: 1001-5868  
PUBLISHER: Bandaoti Guangdian Bianjibu  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

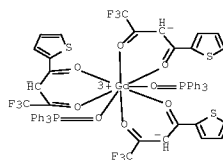
AB An electroluminescent device with complex of di[triphenylphosphine oxide-O-]tri[1-(2-thienyl)-4,4,4-trifluoro-1,3-butanedione-O,O-]europium(III)gadolinium(III) (TTA)3(TFPO)2 as light emitting material, 2-(4-biphenyl)-5-(4-t-butylphenyl)-1,3,4-oxadiazole as an electron transport material, and poly(N-vinylcarbazole) as a hole transport material was manufactured. The characteristics of the device and its electroluminescence spectra at 77-300K were studied. The observed phosphorescence was triplet state which caused by the strong disturbance of Gd3+ to the spin orbit of ligand electrons. The effective energy transfer between ligands and Eu3+ increased the electroluminescent fluorescence intensity of Eu3+.

IT 135:29-30, solid solution with Gd analog 200292-99-50  
R1: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(Energy transfer in organic electroluminescent devices)

RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O, $\kappa$ O']bis(triphenylphosphine oxide- $\kappa$ O)- (CA INDEX NAME)



RN 200292-99-5 CAPLUS  
CN Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato- $\kappa$ O, $\kappa$ O']bis(triphenylphosphine oxide- $\kappa$ O)- (9CI) (CA INDEX NAME)



L6 ANSWER 66 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2001:154336 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:5910  
TITLE: Synthesis and electroluminescence properties of ortho-, meta- and para-linked polymers containing oxadiazole unit  
AUTHOR(S): Song, S.-Y.; Ahn, T.; Shim, H.-K.; Song, I.-S.; Kim, W.-H.  
CORPORATE SOURCE: Department of Chemistry and School of Molecular Science (BK21), Center for Advanced Functional Polymers, Korea Advanced Institute of Science and Technology, Taejeon, 305-701, S. Korea  
SOURCE: Polymer (2004), 42(11), 4803-4811  
CODEN: POLMAG; ISSN: 0032-3861  
PUBLISHER: Elsevier Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A series of electroluminescent  $\pi$ -conjugated polymers containing an oxadiazole group in the backbone was prepared through Heck's coupling or Wittig's condensation reaction. Poly[(2,5-bis(5-hexyloxyphenyl)-1,3,4-oxadiazole)-2,2-diylvinylene-alt-1,4-phenylenevinylene] (PPOXEV), poly[(2,5-bis(2-

hexyloxyphenyl)-1,3,4-oxadiazole)-5,5-diylvinylene-alt-1,4-phenylenevinylene] (PPOXEV) and poly[(2,5-diphenyl-1,3,4-oxadiazole)-2,4-diylvinylene-alt-1,4-(2,5-dihexyloxy)-phenylenevinylene] (PPOXEV) were soluble in common organic solvents and showed good thermal stability. The maximum photoluminescence (PL) wavelengths of PPOXEV, PPOXEV and PPOXEV appeared at 495, 470, and 510 nm, resp. The electroluminescence (EL) spectra of PPOXEV and PPOXEV showed maximum peaks at 500 and 510 nm, resp., corresponding to greenish-blue light. Fabricated Al/polymer/ITO glass single-layer light-emitting diodes had turn-on voltages at 5.5, 9.5, and 6.0 V, resp. In blending synthesized polymers with 4-(dicyanomethylene)-2-methyl-6-[p-(dimethylamino)styryl]-4H-pyran (DCM), the polymers are also believed to serve as excellent polymer electron-transporting materials.

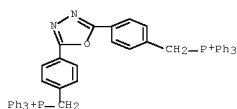
IT 134:30-36-98  
R1: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and electroluminescence properties of ortho-, meta- and para-linked polymers containing oxadiazole and phenylenevinylene unit)

RN 341510-86-9 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis(triphenyl-, dibromide, polymer with 2,5-bis(hexyloxy)-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

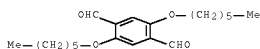
CMF C52 H42 N2 O P2 . 2 Br



CM 2

CRN 151903-52-5

CMF C20 H30 O4



OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)  
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 67 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2001:137539 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:200306  
TITLE: Cyclooctatetraenes as electron transporters in organic light emitting diodes  
INVENTOR(S): Weber, William F.; Lu, Ping; Thompson, Mark E.; Hong, Halping  
PATENT ASSIGNEE(S): The University of Southern California, USA  
SOURCE: PCT Int. Appl., 54 pp.  
CODEN: PIIXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

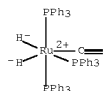
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001013683	A1	20010222	WO 2000-US22425	20000816 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6506505	B1	20030114	US 1999-375125	19990816 <--
AU 2000067759	A	20010313	AU 2000-67759	20000816 <--
TW 477157	B	20020221	TW 2000-89116532	20000816 <--
PRIORITY APPLN. INFO.:			US 1999-375125	A 19990816
			WO 2000-US22425	W 20000816

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 134:200306

AB Organic light-emitting devices are described which are provided with electron transporting layers comprising a cyclooctatetraene derivative (especially a tetraaryl-tetraarylethynyl-cyclooctatetraene).

IT 25360-32-1, Dihydridocarbonyltris(triphenylphosphine)ruthenium  
R1: CAT (Catalyst use); USES (Uses)  
(organic electroluminescent devices using cyclooctatetraene derivative electron transport layers)

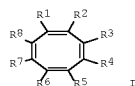
RN 25360-32-1 CAPLUS  
CN Ruthenium, carbonyldihydrotris(triphenylphosphine)- (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 68 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:137167 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:193144  
TITLE: Synthesis of cyclooctatetraene derivatives and their use as electron transporters in organic light emitting diodes  
INVENTOR(S): Weber, William F.; Lu, Ping; Thompson, Mark E.; Hong, Haiping  
PATENT ASSIGNEE(S): The University of Southern California, USA  
SOURCE: PCT Int. Appl., 57 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001012576	A1	20010222	WO 2000-US22428	20000816 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 20020016474	A1	20020207	US 2001-816527	20010323 <--
US 6350875	B1	20020226		
PRIORITY APPLN. INFO.:			US 1999-375126	A 19990816
OTHER SOURCE(S):	MARPAT 134:193144			
GI				

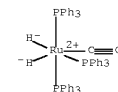


AB Cyclooctatetraene derivs. are described by the general formula I (R1-8 = alkyl, aryl, and/or alkynyl groups; and Z1 of R1-8 is different from the other members of R1-8). Application as electron transport materials in organic electroluminescent devices is indicated.

IT 25360-32-1, Dihydridocarbonyltris(triphenylphosphine)ruthenium  
RL: CAT (Catalyst use); USES (Uses)  
(cyclooctatetraene derivs.)

RN 25360-32-1 CAPLUS

CN Ruthenium, carbonyldihydrotris(triphenylphosphine)- (CA INDEX NAME)



REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 69 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:64321 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:139011  
TITLE: Cavity-emission electroluminescent device and method for forming the device  
INVENTOR(S): Bei, Qibing; Oh, Seajin  
PATENT ASSIGNEE(S): Sri International, USA  
SOURCE: PCT Int. Appl., 48 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001006577	A1	20010125	WO 2000-US19974	20000720 <--
W:	JP			
RW:	AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE			
US 6593687	B1	20030715	US 2000-618864	20000719 <--
EP 1218949	A1	20020703	EP 2000-950551	20000720 <--
EP 1218949	B1	20081203		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY			
JP 2003522371	T	20030722	JP 2001-510926	20000720 <--
PRIORITY APPLN. INFO.:			US 1999-144938P	F 19990720
			US 2000-618864	A 20000719
			WO 2000-US19974	W 20000720

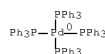
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB An electroluminescent device and a method for producing the electroluminescent device are described. The device is formed from a layered structure comprising a hole-injection electrode layer for injecting holes into an electroluminescent material, an electron-injection electrode layer for injecting electrons into an electroluminescent material and a dielec. layer interposed between the hole-injecting and electron-injecting electrode layers. A cavity extends through at least the dielec. layer and one of the electrode layers and has an interior cavity surface comprising a hole-injection electrode region, an electron-injection electrode region and a dielec. region. An electroluminescent coating material is applied to the interior cavity surface to elec. contact the hole-injection and electron-injection electrode regions of the interior cavity surface.

IT 14221-01-3, Tetrakis(triphenylphosphine)-palladium  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(cavity-emission electroluminescent device and method for forming device)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

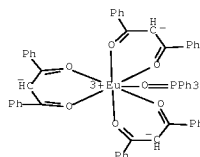
L6 ANSWER 70 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:417 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:272949  
TITLE: Efficient red electroluminescence from devices having multilayers of a europium complex  
AUTHOR(S): Hu, Wenping; Matsumura, Michio; Wang, Mingzhao; Jin, Linpei  
CORPORATE SOURCE: Research Center for Photoenergetics of Organic Materials, Osaka University, Osaka, 560-8531, Japan  
SOURCE: Applied Physics Letters (2000), 77(26), 4271-4273  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB To get red electroluminescence from a Eu complex with high efficiency, a hole-injection layer was inserted between the Eu-complex layer and an In-Sn-oxide electrode, and a hole-blocking layer was inserted between the Eu-complex and electron-transporting layers. To further improve the efficiency, devices having multiple-stacked Eu-complex (2.5 nm)/hole blocking (2.5 nm) units were fabricated. By stacking six units, the maximal luminance and emission efficiency of the red emission were increased to more than twice that from a device with a single Eu-complex layer.

IT 161973-16-6  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(efficient red electroluminescence from devices having multilayers of a europium complex)

RN 161973-16-6 CAPLUS

CN Europium, tris(1,3-diphenyl-1,3-propanedionato-  
w01,w03)(triphenylphosphine oxide-w0)-,  
(IFS-7-1-22'2'2'2'2)- (CA INDEX NAME)



OS.CITING REF COUNT: 47 THERE ARE 47 CAPLUS RECORDS THAT CITE THIS RECORD (47 CITINGS)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 71 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:911592 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:78733  
TITLE: Flat panel display with improved contrast  
INVENTOR(S): Salata, Oleg Victorovich; Renault, Olivier; Christou, Victor  
PATENT ASSIGNEE(S): Isis Innovation Limited, UK  
SOURCE: PCT Int. Appl., 23 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000079616	A1	20001228	WO 2000-GB23777	20000619 <--
W:	AG, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
PRIORITY APPLN. INFO.:			GB 1999-14372	A 19990618
			GB 1999-27116	A 19991116

AB The invention relates to a non-reflective electrode which can be used in a flat-panel display. A light emitting device is described which comprises a transparent substrate layer, a transparent electrode layer, a light emitting layer and a back electrode which is as a layer of C.

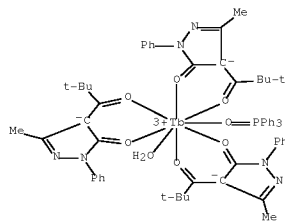
IT 315181-49-8  
RL: DEV (Device component use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
(flat panel display with improved contrast and containing light emitting layer of)

RN 315181-49-8 CAPLUS

CN Terbium, aquatris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-



methyl-2-phenyl-3H-pyrazol-3-onato-KO3}(triphenylphosphine  
oxide-KO)- (CA INDEX NAME)



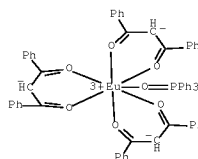
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 72 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:856834 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:123026  
TITLE: Red electroluminescence from an organic  
europium complex with a triphenylphosphine oxide  
ligand  
AUTHOR(S): Hu, Wenping; Matsumura, Michio; Wang, Mingzhao; Jin,  
Linpei  
CORPORATE SOURCE: Research Center for Photoenergetics of Organic  
Materials, Osaka University, Osaka, 560-8531, Japan  
SOURCE: Japanese Journal of Applied Physics, Part 1: Regular  
Papers, Short Notes & Review Papers (2000),  
39(11), 6445-6448  
CODEN: JAPNDE; ISSN: 0021-4922  
PUBLISHER: Japan Society of Applied Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB An Eu-complex, Eu tris(dibenzoylmethide) (triphenylphosphine oxide), was newly  
synthesized and used as a light-emitting material in electroluminescent  
devices. The complex was easily deposited as transparent and homogeneous thin  
films by vacuum sublimation and was successfully applied to electroluminescent  
devices with a stacked structure of In-Sn-oxide (ITO)/hole transporting  
layer/Eu-complex layer/hole blocking layer/electron transporting  
layer/cathode. The devices with this structure gave off pure red light with  
luminance 5320 cd/m2. The hole-blocking layer was essential to obtain pure  
red light from this Eu-complex. Without the hole-blocking layer, holes passed  
through the Eu-complex layer and entered into the electron transporting layer,  
leading to yellow emission.

IT 161973-16-68  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic

preparation); PREP (Preparation); USES (Uses)  
(synthesis and red electroluminescence of organic europium  
complex with triphenylphosphine oxide ligand)

RN 161973-16-6 CAPLUS  
CN Europium, tris(1,3-diphenyl-1,3-propanedionato-  
K01,K03}(triphenylphosphine oxide-K0)-,  
(TPS-7-1-22'2'2'2'2)- (CA INDEX NAME)



IT 791-28-6, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of organic europium complex with triphenylphosphine oxide  
ligand using)

RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS  
RECORD (18 CITINGS)  
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

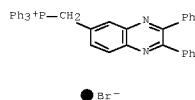
L6 ANSWER 73 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:824318 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:5250  
TITLE: Organic semiconductors based on statistical copolymers  
INVENTOR(S): Sage, Ian Charles; Wood, Emma Louise; Feast, William  
James; Peace, Richard John  
PATENT ASSIGNEE(S): The Secretary of State for Defence, UK  
SOURCE: PCT Int. Appl., 44 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000069931	A1	20001123	WO 2000-GB1636	20000427 <--
W: GB, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
GB 2363384	A	20011219	GB 2001-24379	20000427 <--
GB 2363384	B	20031029		
EP 1183287	A1	20020306	EP 2000-927461	20000427 <--
EP 1183287	B1	20050126		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 200254345	T	20021224	JP 2000-618346	20000427 <--
AT 287906	T	20050215	AT 2000-927461	20000427 <--
US 6642332	B1	20031104	US 2002-959670	20020430 <--
GB 1999-10963 A 19990512				
WO 2000-GB1636 W 20000427				

PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB This invention relates to statistical copolymers [(CA(CH2)m(CH2CB2)j)Q and their use in organic semiconductor devices; wherein m and j are the average number of repeat units of A and B such that: m = 0.1-0.9, j = 1-m, Q = 10-50000; A and B are independently selected from hole transporting groups and electron transporting groups and are statistically distributed along the polymer chain; X and Z are independently selected from H, CN, F, Cl, Br, CO2CH3. The polymers are useful in LEDs. A copolymer was prepared from 1,2-diphenyl-6-vinylquinoxaline and 4-vinyltriphenylamine.

IT 109245-35-58  
RL: IMP (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(organic semiconductors based on statistical copolymers)  
RN 109145-35-9 CAPLUS  
CN Phosphonium, [(2,3-diphenyl-6-quinoxalyl)methyl]triphenyl-, bromide (1:1) (CA INDEX NAME)

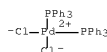


IT 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(organic semiconductors based on statistical copolymers)  
RN 603-35-0 CAPLUS  
CN Phosphine, triphenyl- (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

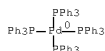
L6 ANSWER 74 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:808154 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:100916  
TITLE: Syntheses, Structures, and Luminescence/  
Electroluminescence of BPh2(mqp),  
Al(CH3)(mqp)2, and Al(mqp)3 (mqp =  
2-(4'-Methylquinolinyl)-2-phenolato)  
AUTHOR(S): Liu, Shi-Feng; Seward, Corey; Aziz, Hany; Hu,  
Nan-Xing; Popovic, Zoran; Wang, Suning  
CORPORATE SOURCE: Department of Chemistry, Queen's University, Kingston,  
ON, K7L 3N6, Can.  
SOURCE: Organometallics (2000), 19(26), 5709-5714  
CODEN: ORGN7; ISSN: 0276-7333  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 134:100916  
AB Three new complexes BPh2(mqp) (1), Al(CH3)(mqp)2 (2), and Al(mqp)3 (3) were  
synthesized and characterized, where mqp = 2-(4'-methylquinolinyl)-2-  
phenolato. The mqp ligand in compds. 1 and 2 act as a chelate ligand, while  
in compound 3 it acts as both a chelate ligand and a terminal ligand. The  
boron center in 1 has tetrahedral geometry, while the aluminum ion in 2 and 3  
has trigonal-bipyramidal geometry. In CH2Cl2 solution, these compds. emit a  
green, a green-blue, and a whitish blue color (lambda = 514, 515, 497 nm), resp.,  
when irradiated by UV light. In the solid state, these three compds. emit a  
green, a blue, and a whitish blue color, resp. (lambda = 520, 474, 500 nm).  
Electroluminescent devices using compound 3 as an emitter were fabricated.  
IT 13965-03-2  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst for substitution reaction of chlorolepidine with  
(methoxyphenyl)boronic acid)  
RN 13965-03-2 CAPLUS  
CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



OS.CITING REF COUNT: 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS  
RECORD (42 CITINGS)  
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 75 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:808149 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:116000  
TITLE: Synthesis and Ring-Opening Reactions of  
1,8-Silanonaphthalenes  
AUTHOR(S): Ohshita, Joji; Matsushige, Koji; Kunai, Atsutaka;  
Adachi, Akira; Sakamaki, Koichi; Okita, Koichi  
CORPORATE SOURCE: Department of Applied Chemistry Faculty of

Engineering, Hiroshima University, Higashi-Hiroshima,  
739-8527, Japan  
SOURCE: Organometallics (2000), 19(26), 5582-5588  
CODEN: ORGN77; ISSN: 0276-7333  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 134:116000  
AB 1,8-(Di-sec-butylsilo)-, 1,8-(bis[(trimethylsilyl)methyl]silo)-, and 1,8-  
[bis[(S)-2-methylbutyl]silo]naphthalene (1a-c) were prepared, and their  
ring-opening reactions were investigated. Reactions of 1a,b with  
methylolithium afforded products arising from the addition of methylolithium to the  
Si-C bond of the four-membered ring of 1a,b, followed by rearrangement of the  
resulting anionic species. Methanolysis of 1a gave 1-(methoxydi-sec-  
butylsilyl)naphthalene. Heating 1a,b in the presence of a catalytic amount of  
Pd(PPh3)4 gave the head-to-tail cyclic dimers. Treatment of 1a,c with lithium  
metal gave ring-opened oligo(silylene-1,8-naphthylenes) in good yield. The  
optical data of the oligomers indicated the existence of helical structural  
segments in the backbone. The hole-transporting properties of the oligomers  
obtained from 1a were examined by the performance of an EL device with the  
structure of ITO/oligo(silylene-1,8-naphthylene)/Alq/Mg-Ag, which emitted  
green luminescence due to the Alq emission. The crystal structures of 1b and  
its dimer were examined by x-ray diffraction studies.  
IT 14221-01-3  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst for ring opening reaction of silanonaphthalenes)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

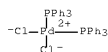


OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS  
RECORD (12 CITINGS)  
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 76 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:667016 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 133:244907  
TITLE: Hybrid electroluminescent device  
INVENTOR(S): Arai, Michio  
PATENT ASSIGNEE(S): TDK Corporation, Japan  
SOURCE: PCT Int. Appl., 55 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000056124	A1	20000921	WO 1999-JP3394	19990625 <--
W: CN, KR				

studied. Efforts on enhancing the multifunctional performance of the  
oxadiazole liquid crystals, especially the mesogenic range and fluorescence  
efficiency, and addnl. modifications of the overall device configurations are  
underway. The authors will concentrate on lowering the liquid crystalline  
temperature range of the compds. the authors have already prepared and  
evaluated and synthesize new heterocyclic compds. and examine their charge  
transport properties in more detail. As electron transport materials are  
particularly sensitive to impurities the authors will also examine the  
influence of sample purity on the various phys. properties.  
IT 13965-03-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(charge transport heterocyclic liquid crystals for organic light  
emitting diode applications)  
RN 13965-03-2 CAPLUS  
CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD  
(3 CITINGS)  
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 78 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:553664 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 133:170118  
TITLE: Fluorene copolymers and devices made therefrom  
INVENTOR(S): Inbasekaran, Michael; Woo, Edmund P.; Wu, Weishi;  
Bernius, Mark T.  
PATENT ASSIGNEE(S): Dow Chemical Company, USA  
SOURCE: PCT Int. Appl., 33 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000046321	A1	20000810	WO 1999-US7876	19990409 <--
W: CA, CN, JP, KR, SG				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2360644	A1	20000810	CA 1999-2360644	19990409 <--
EP 1155096	A1	20011121	EP 1999-916596	19990409 <--
EP 1155096	B1	20050309		
R: DE, FR, GB, IT, NL				
US 6353083	B1	20020305	US 1999-289344	19990409 <--
JP 2002536492	T	20021029	JP 2000-597384	19990409 <--
CN 1206254	C	20050615	CN 1999-816448	19990409 <--
TW 577910	B	20040301	TW 1999-88106303	19990420 <--
JP 2009293013	A	20091217	JP 2009-97411	20090413
PRIORITY APPLN. INFO.:			US 1999-118799P	P 19990204

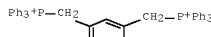
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE  
JP 2000268969 A 20000929 JP 1999-71785 19990317 <--  
EP 1096835 A1 20010502 EP 1999-926812 19990625 <--  
EP 1096835 B1 20080423  
R: DE, FR, GB, IT, NL  
US 6288487 B1 20010911 US 1999-344805 19990625 <--  
TW 484342 B 20020421 TW 1999-88110790 19990625 <--  
CN 1275500 C 20060913 CN 1999-806094 19990625 <--  
PRIORITY APPLN. INFO. : JP 1999-71785 A 19990317  
WO 1999-JP3394 W 19990625  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
AB The invention refers to an organic/inorg. hybrid electroluminescent device,  
suitable for use in display devices, comprising a high resistance inorg.  
electron injection layer as a conductive path for hole blocking and electron  
transport, placed between an organic polymer layer and the cathode, in order  
to create a low cost, long lasting high quality electroluminescent device.  
IT 603-35-0, Triphenylphosphine, uses  
RL: DEV (Device component use); USES (Uses)  
(hybrid electroluminescent device)  
RN 603-35-0 CAPLUS  
CN Phosphine, triphenyl- (CA INDEX NAME)



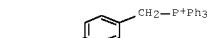
OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD  
(6 CITINGS)  
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 77 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:566054 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 133:273972  
TITLE: Charge transport heterocyclic liquid crystals for  
organic light emitting diode  
applications  
AUTHOR(S): Twieg, R. J.; Gu, S.; Semyonov, A.; Sukhomlinova, L.;  
Malliaras, G. G.; Fan, R.; Singer, K.; Ostroverkhova,  
O.; Shiyonovskaya, I.  
CORPORATE SOURCE: Department of Chemistry, Kent State University, Kent,  
OH, 44242, USA  
SOURCE: Polymeric Materials Science and Engineering (2000), 83, 210-211  
CODEN: PMSEGG; ISSN: 0743-0515  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The authors report on the synthesis and phys. properties of a variety of  
heterocyclic liquid crystalline materials. Electrochem. behavior of some of  
them was evaluated and charge transport properties were studied by the time-  
of-flight technique. The authors will also report here on the fabrication and  
properties of single and multilayer devices containing these materials that  
operate at room temperature. A number of new heterocyclic materials were  
prepared and their phys. properties were evaluated. Single and multilayer  
devices were fabricated and their room temperature GSE characteristics were

JP 2000-597384 A3 19990409  
WO 1999-US7876 W 19990409  
AB Copolymers are described in which 210% of the monomeric units are fluorene  
moieties selected from 9-substituted fluorene moieties, 9,9-disubstituted  
fluorene moieties, or combinations thereof; and 21% of the monomeric units  
comprising two other moieties which are different from each other but which  
both comprise delocalized  $\pi$ -electrons; the other moieties being independently  
selected from moieties that have hole-transporting properties and moieties  
that have electron-transporting properties; wherein if both of the other  
moieties have hole transporting properties, then 21 of the moieties is derived  
from stilbenes or 1,4-dienes without electron withdrawing substituents,  
N,N',N'-tetraarylbenzidines, N-substituted-carbazoles, diarylsilanes, and  
thiophenes/furans/pyrroles without electron-withdrawing substituents. Polymer  
blends comprising the polymers are also described, as are films formed from  
the polymers or blends and light-emitting devices and MIS FETs employing the  
films.  
IT 40273-74-2 40817-03-6,  
p-Xylylenebis-(triphenylphosphonium bromide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(fluorene derivative copolymers and devices using them)  
RN 10273-74-2 CAPLUS  
CN Phosphonium, 1,1'-[1,3-phenylenebis(methylene)]bis[1,1,1-triphenyl-,  
bromide (1:2) (CA INDEX NAME)



RN 40817-03-6 CAPLUS  
CN Phosphonium, 1,1'-[1,4-phenylenebis(methylene)]bis[1,1,1-triphenyl-,  
bromide (1:2) (CA INDEX NAME)



OS.CITING REF COUNT: 61 THERE ARE 61 CAPLUS RECORDS THAT CITE THIS  
RECORD (72 CITINGS)  
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 79 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:521367 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 133:208256

TITLE: Synthesis of poly(arylene ether)s containing hole-transport moieties from an isocyanate masked bisphenol

AUTHOR(S): Lu, Jianping; Hlil, Antisar R.; Hay, Allan S.; Maindron, Tony; Dodelet, Jean-Fol; Lam, Jennifer; D'Iorio, Marie

CORPORATE SOURCE: Department of Chemistry, McGill University, Montreal, QC, H3A 2K6, Can.

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2006), 38(15), 2740-2748  
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

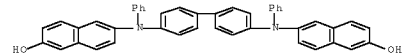
AB The design and synthesis of novel charge (hole- or electron-) transport materials have been the focus of much research in recent years because of their wide variety of applications. In this study, three high mol. weight poly(arylene ether)s, 6a-c, containing naphthyl-substituted benzidine moieties have been synthesized from carbamates derived from bisphenols. After masking with Pr isocyanate, the carbamate is stable, can be readily purified by recrystn. from toluene, and can be polymerized directly with difluoro compds. under mild conditions. The resulting polymers possess high glass-transition temps., excellent thermal stability, and good film-forming properties. In comparison, the poly(arylene ether)s 6a'-c', synthesized from unprotected bisphenol, have lower mol. wts. and wider polydispersity and contain some brown impurities. Preliminary expts. show that both 6a and 6a' can function well as hole-transport materials in light-emitting diodes.

IT 290815-97-3E 290815-98-4F 290816-00-0E  
RL: FRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis of poly(arylene ether)s containing hole-transport moieties from an isocyanate masked bisphenol)

RN 290815-97-3 CAPLUS  
CN 2-Naphthalenol, 6,6'-[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

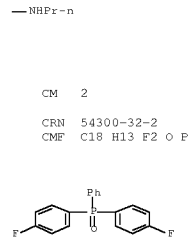
CM 1

CRN 290815-93-9  
CMF C44 H32 N2 O2



CM 2

CRN 54300-32-2  
CMF C18 H13 F2 O P



OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 80 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:500174 CAPLUS ~~Full-text~~

DOCUMENT NUMBER: 133:251989

TITLE: Synthesis of Octasubstituted Cyclooctatetraenes and Their Use as Electron Transporters in Organic Light-Emitting Diodes

AUTHOR(S): Lu, Ping; Hong, Haiping; Cai, Guoping; Djurovich, Peter; Weber, William P.; Thompson, Mark E.

CORPORATE SOURCE: Department of Chemistry and The Donald P. and Katherine B. Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles, CA, 90089, USA

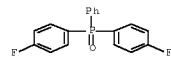
SOURCE: Journal of the American Chemical Society (2000), 122(31), 7480-7486  
CODEN: JACSAI; ISSN: 0002-7863

PUBLISHER: American Chemical Society

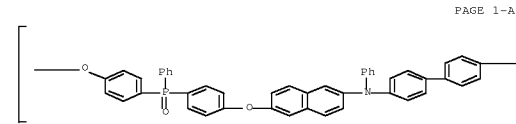
DOCUMENT TYPE: Journal

LANGUAGE: English

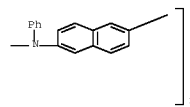
AB The synthesis and characterization of octasubstituted cyclooctatetraenes (COTs) as well as their use as electron transporting materials in organic LEDs are reported. Tetraaryl-tetraarylethynyl-cyclooctatetraenes [C8Ar4(C.tplbond.CAr)4] were prepared from diaryldiynes with a RuH2(CO) (PPh3)3 catalyst in good yield (40-80%). Octaaryl-cyclooctatetraenes were prepared from diarylacetylenes by treatment with lithium and iodine in 50% yield. Cyclic voltammetry indicates that these COTs are reduced in sequential one-electron steps. C8Ar4(C.tplbond.CAr)4 and C8Ar8 are thermally stable to sublimation and have wide optical energy gaps [ $\lambda_{max}(\text{emission}) = 392\text{-}412\text{ nm}$ ] making them good candidates for use in organic LEDs. These octasubstituted COTs have been used



RN 290815-98-4 CAPLUS  
CN Poly[oxy-1,4-phenylene (phenylphosphinylidene)-1,4-phenyleneoxy-2,6-naphthalenediyl (phenylimino) [1,1'-biphenyl]-4,4'-diyl (phenylimino)-2,6-naphthalenediyl] (9CI) (CA INDEX NAME)



PAGE 1-A

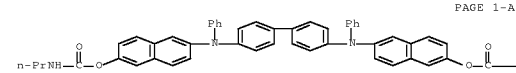


PAGE 1-B

RN 290816-05-6 CAPLUS  
CN Carbanic acid, propyl-, [1,1'-biphenyl]-4,4'-diylbis[(phenylimino)-6,2-naphthalenediyl] ester, polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

CM 1

CRN 290815-94-0  
CMF C52 H46 N4 O4



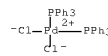
PAGE 1-A

PAGE 1-B

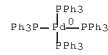
as electron transport layers in single heterostructure organic LEDs, i.e. ITO/NPD 400 Å/octasubstituted COT 400 Å/Mg-Ag (ITO = indium-tin oxide, NPD = N,N'-diphenyl-N,N'-dinaphthylbenzidine). External quantum efficiencies of 0.1-0.2% (photons/electrons) were observed, with turn-on voltages of ca. 6 V. The emission from this device comes exclusively from the NPD hole transporting layer, with a  $\lambda_{max}$  of 435 nm. Doping the NPD layer with 1% perylene leads to an increased quantum efficiency of 0.6% and an electroluminescence spectrum indicative of emission solely from the perylene dopant, confirming exclusive emission from the NPD hole transporting layer.

IT 13965-03-2, Bis(triphenylphosphine)palladium dichloride  
14221-01-3, Tetrakis(triphenylphosphine)palladium  
25360-32-1  
RL: CAT (Catalyst use); USES (Uses)  
(preparation of tetraaryl-tetraarylethynylcyclooctatetraenes for use as LEDs)

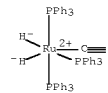
RN 13965-03-2 CAPLUS  
CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



RN 25360-32-1 CAPLUS  
CN Ruthenium, carbonyldihydrotris(triphenylphosphine)- (CA INDEX NAME)



OS.CITING REF COUNT: 38 THERE ARE 38 CAPLUS RECORDS THAT CITE THIS RECORD (39 CITINGS)

REFERENCE COUNT: 74 THERE ARE 74 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 81 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:488976 CAPLUS Full-text  
DOCUMENT NUMBER: 133:273549  
TITLE: Electroplex emission from a layer of a mixture of a europium complex and tris(8-quinolinolato) aluminum  
AUTHOR(S): Cao, H.; Gao, X.; Huang, C.-H.  
CORPORATE SOURCE: Peking University and the University of Hong Kong Joint Laboratory on Rare Earth Materials and Bioinorganic Chemistry, State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
SOURCE: Applied Surface Science (2000), 161(3-4), 443-447  
CODEN: ASUSEE; ISSN: 0169-4332  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB With tris(4-thenyltrifluoroacetato)bis(triphenylphosphine oxide)europium (Eu(TTA)3(TPFO)2) as the light-emitting layer, N,N'-diphenyl-N,N'-di(m-tolyl)benzidine (TPD) as the hole transport layer, and tris(8-quinolinolato)aluminum (ALQ) as the electron transport layer, the triple-layer electroluminescent (EL) device emits red light characteristic of Eu3+ emission. As the mixture of Eu(TTA)3(TPFO)2 and ALQ is coevapd. as the light-emitting layer to form a bilayer EL device, a new wide-banded emission peaked at .apprx.640 nm was obtained. This emission is neither from ALQ nor from the Eu complex. The luminescence (PL) of the film on SiO2 substrate evaporated from 1 mixed solid powder of Eu(TTA)3(TPFO)2 and ALQ is composed of distinct PL emissions of Eu(TTA)3(TPFO)2 and ALQ, denying an exciplex formation mechanism. It is impossible to form a host-guest system. Probably the EL emission peaked at .apprx.640 nm is from an electroplex route: a transition between the LUMO of Eu(TTA)3(TPFO)2 and the HOMO of ALQ.

IT 298199-64-08  
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process) (formation and electroplex emission from layer of)

RN 298199-64-1 CAPLUS

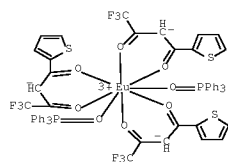
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa^{\text{O}},\kappa^{\text{O}}'$ ]bis(triphenylphosphine oxide- $\kappa^{\text{O}}$ )-, compd. with tris(8-quinolinolato- $\kappa^{\text{N1}},\kappa^{\text{O8}}$ )aluminum (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12121-29-8

CMF C60 H42 Eu F9 O8 P2 S3

CCI CCS

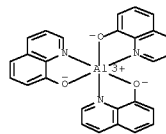


CM 2

CRN 2085-33-8

CMF C27 H18 Al N3 O3

CCI CCS

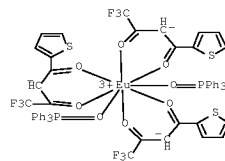


IT 12121-29-8

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses) (preparation and electroplex emission from layer of mixture of aluminum quinolinolato complex and)

RN 12121-29-8 CAPLUS

CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa^{\text{O1}},\kappa^{\text{O3}}$ ]bis(triphenylphosphine oxide- $\kappa^{\text{O}}$ )- (CA INDEX NAME)



OS.CITING REF COUNT: 28

THERE ARE 28 CAPLUS RECORDS THAT CITE THIS

RECORD (28 CITINGS)

REFERENCE COUNT: 12

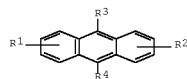
THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 82 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:401575 CAPLUS Full-text

DOCUMENT NUMBER: 133:51006  
TITLE: Electroluminescent device with anthracene derivatives hole transport layer  
INVENTOR(S): Shi, Jianmin; Tang, Ching W.; Klubek, Kevin P.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: Eur. Pat. Appl., 42 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1009044	A2	20000614	EP 1999-203965	19991125 <--
EP 1009044	A3	20020410		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 20020028346	A1	20020307	US 1998-208172	19981209 <--
US 6465115	B2	20021015		
JP 2000182776	A	20000630	JP 1999-348434	19991208 <--
KR 2000048009	A	20000725	KR 1999-55959	19991208 <--
KR 826364	B1	20080502		
PRIORITY APPLN. INFO.: US 1998-208172 A 19981209				
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
OTHER SOURCE(S): MARPAT 133:51006				
GI				



AB Organic multilayer electroluminescent devices including an anode and cathode between which are provided a hole transport layer and an electron transport layer disposed in operative relationship with the hole transport layer are described in which the hole transport layer includes  $\geq 1$  organic compound described by the general formula I (R1-4 are individually selected from H, C1-24 alkyl, C5-20 (un)substituted aryl, C5-24 (un)substituted heteroaryl, F, Cl, Br, or CN).

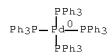
IT 13985-03-2 14221-01-1,  
Tetrakis(triphenylphosphine)palladium  
RL: RCT (Reactant); RACT (Reactant or reagent) (electroluminescent devices with hole transport layers containing anthracene derive.)

RN 13985-03-2 CAPLUS

CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 28

THERE ARE 28 CAPLUS RECORDS THAT CITE THIS

RECORD (40 CITINGS)

REFERENCE COUNT: 2

THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 83 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:401574 CAPLUS Full-text

DOCUMENT NUMBER: 133:51005

TITLE: Electroluminescent device with polyphenyl hydrocarbon hole transport layer

INVENTOR(S): Shi, Jianmin; Zheng, Shiyang; Tang, Ching W.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: Eur. Pat. Appl., 27 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

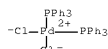
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

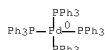
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1009043	A2	20000614	EP 1999-203963	19991125 <--
EP 1009043	A3	20020703		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000182777	A	20000630	JP 1999-348488	19991208 <--
KR 2000048007	A	20000725	KR 1999-55935	19991208 <--
US 20010021478	A1	20010913	US 2001-843391	20010426 <--
US 6699595	B2	20040302		
US 20010023029	A1	20010920	US 2001-842445	20010426 <--
US 6596415	B2	20030722		
PRIORITY APPLN. INFO.: US 1998-208313 A 19981209				
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
OTHER SOURCE(S): MARPAT 133:51005				

AB Organic multilayer electroluminescent devices including an anode and cathode between which are provided a hole transport layer and an electron transport layer disposed in operative relationship with the hole transport layer are described in which the hole transport layer includes  $\geq 1$  aryl-linked polyphenyl

hydrocarbon. The aryl linking group may be a Ph, naphthalene, fluorene, phenanthrene, or spirobifluorene group.  
IT 13965-03-2 CAPLUS  
Tetrakis(triphenylphosphine)palladium  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electroluminescent devices with hole transport layers containing aryl-linked polyphenyl hydrocarbons)  
RN 13965-03-2 CAPLUS  
CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)  
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 84 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:401572 CAPLUS Full-text  
DOCUMENT NUMBER: 133:51003  
TITLE: Electroluminescent device with improved hole transport layer  
INVENTOR(S): Shi, Jianmin; Tang, Ching  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: Eur. Pat. Appl., 37 pp.  
CODEN: EFXDXW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

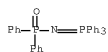
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1009041	A2	20000614	EP 1999-203960	19991125 <--
EP 1009041	A3	20020306		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 20010051285	A1	20011213	US 1998-207703	19981209 <--
US 6361886	B2	20020326		
JP 2000182775	A	20000630	JP 1999-348396	19991208 <--

BR 9916921 A 20011106 BR 1999-16921 19991201 <--  
EP 1171544 A1 20020116 EP 1999-973058 19991201 <--  
EP 1171544 B1 20030924  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO  
JP 2002531630 T 20020924 JP 2000-585349 19991201 <--  
AU 758754 B2 20030327 AU 2000-14008 19991201 <--  
AT 250657 T 20031015 AT 1999-973058 19991201 <--  
PT 1171544 E 20040227 PT 1999-973058 19991201 <--  
ES 2203255 T3 20040401 ES 1999-973058 19991201 <--  
TW 469751 B 20011221 TW 2000-89110587 20000531 <--  
IN 2001MN00615 A 20060505 IN 2001-MN615 20010530 <--  
US 6565995 B1 20030520 US 2001-857286 20010601 <--  
MX 2001005539 A 20030714 MX 2001-5539 20010601 <--  
HK 1040527 A1 20040305 HK 2002-102039 20020315 <--  
GB 1998-26407 A 19981202  
WO 1999-GB4028 W 19991201  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Electroluminescent devices are described which employ Tb(TMHD)3OPNP (TMHD = 2,2,6,6-tetramethyl-3,5-heptanedionato, and OPNP = diphenylphosphonimide tri-Fh phosphorane) as the electroluminescent material. The devices may be prepared by vapor deposition techniques in which tris(2,2,6,6-tetramethyl-3,5-heptanedionato)terbium and diphenylphosphonimide tri-Fh phosphorane are evaporated simultaneously or sequentially. A method for producing white light is also claimed which entails applying a voltage >12 V to the devices.

IT 2156-69-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electroluminescent devices employing tris(2,2,6,6-tetramethyl-3,5-heptanedionato)terbium diphenylphosphonimide tri-Fh phosphorane)

RN 2156-69-6 CAPLUS  
CN Phosphoric amide, P,P-diphenyl-N-(triphenylphosphoranylidene)- (CA INDEX NAME)



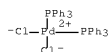
OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)  
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 86 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:377753 CAPLUS Full-text  
DOCUMENT NUMBER: 133:135692  
TITLE: Efficient and blue light-emitting polymers composed of conjugated main chain  
AUTHOR(S): Shim, Hong-Ku; Song, Seung-Yong; Ahn, Taek  
CORPORATE SOURCE: Department of Chemistry, Korea Advanced Institute of Science and Technology, Taejeon, 305-701, S. Korea  
SOURCE: Synthetic Metals (2000), 111-112, 409-412  
CODEN: SYMED2; ISSN: 0379-6779  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal

KR 2000048008 A 20000725 KR 1999-55946 19991208 <--  
KR 793490 B1 20080114  
PRIORITY APPLN. INFO.: US 1998-191705 A 19981113  
US 1998-207703 A 19981209

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
AB Organic electroluminescent devices including an anode and cathode between which are provided a hole transport layer and an electron transport layer disposed in an operative relationship with the hole transport layer are described in which the hole transport layer includes at least an aromatic hydrocarbon or fused hydrocarbon containing 220 carbon atoms and having an ionization potential >5.0 eV. The electron transport layer may have 22 portions, the first portion including 21 fluorescent dye and the second portion providing an electron transport function.

IT 13965-03-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electroluminescent devices with hole transport layers containing aromatic and fused hydrocarbons)  
RN 13965-03-2 CAPLUS  
CN Palladium, dichlorobis(triphenylphosphine)- (CA INDEX NAME)



OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 85 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:384343 CAPLUS Full-text  
DOCUMENT NUMBER: 133:24529  
TITLE: Electroluminescent materials  
INVENTOR(S): Kathirgamanathan, Poopathy  
PATENT ASSIGNEE(S): South Bank University Enterprises Ltd., UK  
SOURCE: PCT Int. Appl., 17 pp.  
CODEN: PIIXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000032718	A1	20000608	WO 1999-GB4028	19991201 <--
W: AE, AL, AM, AT, AU, A2, BA, BB, BG, BR, BY, CA, CH, CN, CU, C2, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, K2, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BU, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2352883	A1	20000608	CA 1999-2352883	19991201 <--

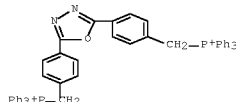
LANGUAGE: English  
AB Poly[o(m,p)-phenylenevinylene-alt-2,5-bis(trimethylsilyl)-p-phenylenevinylene], o(m,p)-PBIMS-PPV and related derivs. were prepared and their light-emitting properties were studied. The peaks of the photoluminescence spectra of p-PBIMS-PPV, o-PBIMS-PPV, and m-PBIMS-PPV were at 485, 470, and 440, resp. Fully conjugated polymers composed of both electron-transporting oxadiazole and hole-transporting carbazole moieties PPOX-CAR and PWOX-CAR were also prepared. The electroluminescence peaks of those polymers occurred at 495 and 450 nm, resp. Maximum brightness of a test device comprising Al/PPOX-CAR/ITO single layer was 500 cd/m2 at 20 V.  
IT 221615-59-4, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer  
221615-62-9, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)carbazole copolymer  
228273-31-2, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer  
228273-33-8, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and optical properties of blue light-emitting poly(trimethylsilyl)-phenylenevinylene and derivs. and of oxadiazole/carbazole containing conjugated polymers)

RN 221615-59-4 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis(triphenyl-, dibromide, polymer with 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

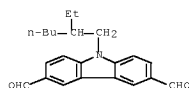
CMF C52 H42 N2 O F2 . 2 Br



CM 2

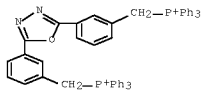
CRN 169051-20-1

CMF C22 H25 N O2

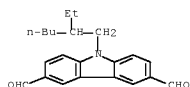


RN 221615-62-9 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(3,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1  
CRN 221615-58-3  
CME C52 H42 N2 O P2 . 2 Br

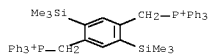


CM 2  
CRN 169051-20-1  
CME C22 H25 N O2

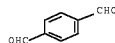


RN 228273-31-2 CAPLUS  
CN Phosphonium, [[2,5-bis(trimethylsilyl)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1  
CRN 161960-54-9  
CME C50 H54 P2 Si2 . 2 Br

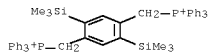


CM 2  
CRN 623-27-8  
CME C8 H6 O2

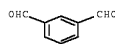


RN 228273-33-4 CAPLUS  
CN Phosphonium, [[2,5-bis(trimethylsilyl)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 1,3-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1  
CRN 161960-54-9  
CME C50 H54 P2 Si2 . 2 Br

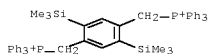


CM 2  
CRN 626-19-7  
CME C8 H6 O2



RN 228273-35-6 CAPLUS  
CN Phosphonium, 1,1'-[[2,5-bis(trimethylsilyl)-1,4-phenylene]bis(methylene)]bis[1,1,1-triphenyl-, bromide (1:2), polymer with 1,2-benzenedicarboxaldehyde (CA INDEX NAME)

CM 1  
CRN 161960-54-9  
CME C50 H54 P2 Si2 . 2 Br



CM 2  
CRN 643-79-8  
CME C8 H6 O2



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 87 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:376937 CAPLUS Full-text  
DOCUMENT NUMBER: 133:24777  
TITLE: Polymer fluorescent material and polymer electroluminescent device  
INVENTOR(S): Noguchi, Kiminobu; Doi, Shuji  
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

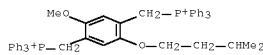
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000154334	A	20000606	JP 1998-329634	19981119 <--
PRIORITY APPLN. INFO.:			JP 1998-329634	19981119

AB The polymer, emitting visible fluorescence in solid state, with number average mol. weight (polystyrene conversion) 103-107 involves 250 mol% (based on the amount of total repeating units) mixture of 21 Ar1(CR1:CR2)n (I; Ar1 = alkyl-, alkoxy-, and/or alkylthio-substituted arylene or heterocycle with C4-20 covalent bonding; n = 0, 1; R1, R2 = H, C1-20 alkyl, C6-20 aryl, C4-20 heterocycle, cyano) and 21 Ar2(CR3:CR4)m (II; Ar3 = arylene or heterocycle with C4-20 covalent bonding; m = 0, 1; R3, R4 are the same as R1, R2) and satisfies 0.33 < X < 0.77 [X = (amount of C in substituents in I)/(amount of C in backbones in I and II)]. The electroluminescent device involves a cathode and an anode, 21 of which is transparent or translucent, and the polymer fluorescent material sandwiched between the electrodes. The heat-resistant polymer electroluminescent device shows improved emission efficiency.

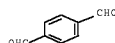
IT 273199-73-8P 273199-75-1P 273199-77-2P  
273199-78-3P  
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
(heat-resistant fluorescent polymer for electroluminescent device)

RN 273199-73-8 CAPLUS  
CN Phosphonium, [[2-methoxy-5-(3-methylbutoxy)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1  
CRN 273199-72-7  
CME C50 H50 O2 P2 . 2 Br

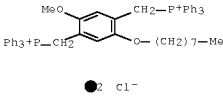


CM 2  
CRN 623-27-8  
CME C8 H6 O2

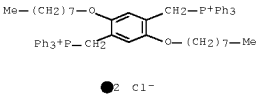


RN 273199-76-1 CAPLUS  
CN Phosphonium, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dichloride, polymer with 1,4-benzenedicarboxaldehyde and [[2-methoxy-5-(octyloxy)-1,4-phenylene]bis(methylene)]bis[triphenylphosphonium] dichloride (9CI) (CA INDEX NAME)

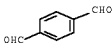
CM 1  
CRN 252338-07-1  
CMF C53 H56 O2 P2 . 2 C1



CM 2  
CRN 148471-36-7  
CMF C60 H70 O2 P2 . 2 C1

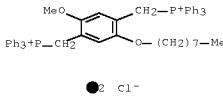


CM 3  
CRN 623-27-8  
CMF C8 H6 O2

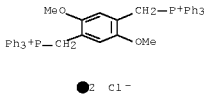


RN 273199-77-2 CAPLUS  
CN Phosphonium, [(2,5-dimethoxy-1,4-phenylene)bis(methylene)]bis(triphenyl-, dichloride, polymer with 1,4-benzenedicarboxaldehyde and [[2-methoxy-5-(octyloxy)-1,4-phenylene]bis(methylene)]bis(triphenylphosphonium) dichloride (9CI) (CA INDEX NAME)

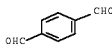
CM 1  
CRN 252338-07-1  
CMF C53 H56 O2 P2 . 2 C1



CM 2  
CRN 10273-64-0  
CMF C46 H42 O2 P2 . 2 C1

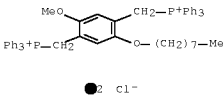


CM 3  
CRN 623-27-8  
CMF C8 H6 O2

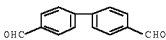


RN 273199-78-3 CAPLUS  
CN Phosphonium, [[2-methoxy-5-(octyloxy)-1,4-phenylene]bis(methylene)]bis(triphenyl-, dichloride, polymer with [1,1'-biphenyl]-4,4'-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1  
CRN 252338-07-1  
CMF C53 H56 O2 P2 . 2 C1



CM 2  
CRN 66-98-8  
CMF C14 H10 O2

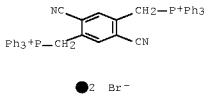


OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

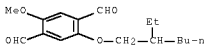
L6 ANSWER 88 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:306725 CAPLUS Full-text  
DOCUMENT NUMBER: 133:59362  
TITLE: A novel series of copolymers containing 2,5-dicyano-1,4-phenylene-vinylene--Synthetic tuning of the HOMO and LUMO energy levels of conjugated polymers  
AUTHOR(S): Xiao, Yang; Yu, Wang-Lin; Chua, Soo-Jin; Huang, Wei  
CORPORATE SOURCE: Institute of Materials Research and Engineering (IMRE), National University of Singapore, Singapore, 117602, Singapore  
SOURCE: Chemistry--A European Journal (2000), 6(8), 1318-1321  
CODEN: CEUJED; ISSN: 0947-6539  
PUBLISHER: Wiley-VCH Verlag GmbH  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A series of copolymers containing 2,5-dicyano-1,4-phenylenevinylene and 2-methoxy-5-(2'-ethylhexyloxy)-1,4-phenylenevinylene units were synthesized by Wittig reactions. The HOMO and LUMO energy levels of copolymers can be easily tuned in the range of 0.7 to 0.8 V. The copolymer can be changed from a typical hole-transport material to a typical electron-transport material by controlling the feed ratio of co-monomers. This method opens a novel way to the design and synthesis of light-emitting polymers with desired properties by controlling the feed ratio of selected monomers.  
IT 265123-89-5P 277753-22-7C  
RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (synthetic tuning of the HOMO and LUMO energy levels of novel conjugated copolymers containing dicyano-phenylene-vinylene units)  
RN 265123-89-5 CAPLUS  
CN Phosphonium, [(2,5-dicyano-1,4-phenylene)bis(methylene)]bis(triphenyl-, dibromide, polymer with 2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-

benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1  
CRN 232948-23-1  
CMF C46 H36 N2 P2 . 2 Br

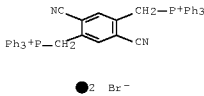


CM 2  
CRN 203251-22-3  
CMF C17 H24 O4



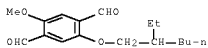
RN 277753-22-7 CAPLUS  
CN Phosphonium, [(2,5-dicyano-1,4-phenylene)bis(methylene)]bis(triphenyl-, dibromide, polymer with 2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-benzenedicarboxaldehyde and [[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis(methylene)]bis(triphenylphosphonium) dibromide (9CI) (CA INDEX NAME)

CM 1  
CRN 232948-23-1  
CMF C46 H36 N2 P2 . 2 Br



CM 2  
CRN 203251-22-3

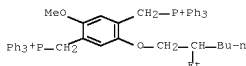
CMF C17 H24 O4



CM 3

CRN 185446-05-3

CMF C53 H56 O2 F2 . 2 Br

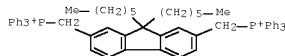


OS.CITING REF COUNT: 26 THERE ARE 26 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

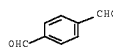
L6 ANSWER 89 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:295376 CAPLUS Full-text  
DOCUMENT NUMBER: 133:59158  
TITLE: Molecular design of light emitting polymers  
AUTHOR(S): Yu, J. W.; Kim, J. K.; Hong, J. M.; Kim, Y. C.; Cho, H. N.; Kim, D. Y.; Kim, C. Y.  
CORPORATE SOURCE: Polymer Materials Laboratory, Korea Institute of Science and Technology, Seoul, 130-650, S. Korea  
SOURCE: Chinese Journal of Polymer Science (2000), 18(3), 227-237  
CODEN: CJPSSE; ISSN: 0256-7679  
PUBLISHER: Springer-Verlag  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Fluorene-based alternating and statistical copolymers were synthesized by employing reaction methods of Wittig, Heck and Suzuki. The copolymers were classified into three groups with the photoluminescence (PL) emission maxima at 420, 475 and 500 nm, resp. Statistical copolymers with two chromophores having PL emission maxima at 420 and 475 nm emitted light with the emission maximum at 475 nm on photoexcitation at 365 nm and improved the quantum efficiency by the energy transfer. However, the intramol. energy transfer was inefficient compared to the intermol. energy transfer when the two chromophores were apart from each other in the range of the Forster critical distance. Fluorene-pyridinedivinylene alternating copolymer was synthesized

by the Wittig reaction and found to have phys., electronic and electrochem. properties of the individual units intact. The double-layered light emitting diode (LED) with the statistical copolymer as an emitting layer and the pyridine-containing copolymer as an electron-transporting-hole blocking layer, which were sandwiched between ITO and Al, displayed a quantum efficiency of 0.1%.

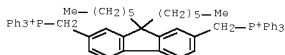
IT 202130-13-0F 202130-14-1P 202130-16-0E  
278186-50-8F  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(mol. design of light emitting polymers and their properties)  
RN 202130-13-0 CAPLUS  
CN Phosphonium, 1,1'-[(9,9-dihexyl-9H-fluorene-2,7-diyl)bis(methylene)]bis[1,1,1-triphenyl-, bromide (1:2), polymer with 1,4-benzenedicarboxaldehyde (CA INDEX NAME)  
CM 1  
CRN 187148-76-1  
CMF C63 H66 F2 . 2 Br



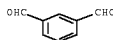
CM 2  
CRN 623-27-8  
CMF C8 H6 O2



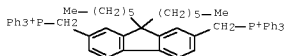
RN 202130-14-1 CAPLUS  
CN Phosphonium, [(9,9-dihexyl-9H-fluorene-2,7-diyl)bis(methylene)]bis[triphenyl-, dibromide, polymer with 1,3-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)  
CM 1  
CRN 187148-76-1  
CMF C63 H66 F2 . 2 Br



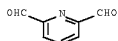
CM 2  
CRN 626-19-7  
CMF C8 H6 O2



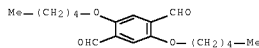
RN 202130-16-3 CAPLUS  
CN Phosphonium, [(9,9-dihexyl-9H-fluorene-2,7-diyl)bis(methylene)]bis[triphenyl-, dibromide, polymer with 2,6-pyridinedicarboxaldehyde (9CI) (CA INDEX NAME)  
CM 1  
CRN 187148-76-1  
CMF C63 H66 F2 . 2 Br



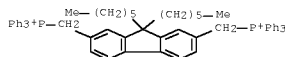
CM 2  
CRN 5431-44-7  
CMF C7 H5 N O2



RN 278186-50-8 CAPLUS  
CN Phosphonium, [(9,9-dihexyl-9H-fluorene-2,7-diyl)bis(methylene)]bis[triphenyl-, dibromide, polymer with 2,5-bis(pentyloxy)-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)  
CM 1  
CRN 278186-49-5  
CMF C18 H26 O4



CM 2  
CRN 187148-76-1  
CMF C63 H66 F2 . 2 Br



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)  
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 90 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:126905 CAPLUS Full-text  
DOCUMENT NUMBER: 132:308924  
TITLE: Blue electroluminescence in blend of polymers containing carbazole and 1,3,4-oxadiazole units  
AUTHOR(S): Jin, Sung-Ho; Kim, Woo-Hong; Song, In-Sung; Kwon, Soon-Ki; Lee, Kwang-Sik; Han, Eun-Mi  
CORPORATE SOURCE: Polymer Laboratory, Samsung Advanced Institute of Technology (SAIT), Moonji-dong, Yusong-gu, Taejeon, S. Korea  
SOURCE: Thin Solid Films (2000), 363(1,2), 255-258  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal



LANGUAGE: English

AB The electro-optical properties of poly(2,5-dihexyl phenylene-alt-N-ethyl-3,6-carbazole vinylene) (PDECvz) and poly([1,4'-phenylene-1'',4''-(2''-(2''-ethylhexyloxy)phenylene-2,5- (1'',4''-(phenylene)-1,3,4-oxadiazolyl)] (PEPECO) were studied. The photoluminescence and electroluminescence spectra of PDECvz-PEPECO blend films are mainly due to the luminance of PDECvz, even at low PDECvz ratios. The blue electroluminescence was significantly enhanced by efficient energy transfer from the PEPECO excited state which has a larger band gap, to PDECvz with a smaller band gap. A test electroluminescent device with the blend as emitter and hole transport layer and tris-(8-hydroxyquinoline)aluminum Alq3 as the electron transport layer, and ITO and Al electrodes, showed significant improvements in charge injection and electroluminescence efficiency vs. PDECvz devices.

IT 224558-12-7

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(efficient band gap matching for improved energy transfer and blue electroluminescence of carbazole- and oxadiazolyl-containing poly(phenylene vinylene) blends for EL devices)

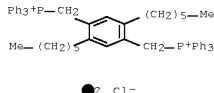
RN 224558-12-7 CAPLUS

CN Phosphonium, [(2,5-dihexyl-1,4-phenylene)bis(methylene)]bis(triphenyl-, dichloride, polymer with 9-ethyl-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 224558-07-0

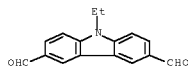
CMF C56 H62 P2 . 2 C1



CM 2

CRN 70207-46-4

CMF C16 H13 N O2



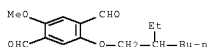
OS.CITING REF COUNT: 23

THERE ARE 23 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)

REFERENCE COUNT: 6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CMF C17 H24 O4



OS.CITING REF COUNT: 5

THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 15

THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 92 OF 109

ACCESSION NUMBER: 1999:579978 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 131:322998

TITLE: Sulfonation and Epoxidation of Substituted Polynorbornenes and Construction of Light-Emitting Devices

AUTHOR(S): Boyd, Thomas J.; Schrock, Richard R.

CORPORATE SOURCE: Department of Chemistry and Center for Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA

SOURCE: Macromolecules (1999), 32(20), 6608-6618

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Efficient routes to sulfonation and epoxidn. of the double bonds in a polynorbornene backbone were found that do not interfere with side chain functional groups of interest for making light-emitting devices. Substituted norbornene monomers were prepared with ether or thioether linkages, which were stable to sulfonation. Oligomers (25mers or 50mers) of homo- and copolymers containing diphenylanthracene (for blue-light emission), oxadiazole (for electron transport), and p-triphenylene (for hole transport) side chains were prepared via ring-opening metathesis polymerization (ROMP) of the corresponding norbornene monomers. Sulfonation of the polynorbornene backbone yielded a polyanionic material that was suitable for creating films via sequential adsorption with the polycation, poly(allylamine HCl) (PAH). Devices with an indium tin oxide (ITO) anode and an aluminum cathode were constructed. A two-layer device comprised of a layer of diphenylanthracene/oxadiazole copolymer and layer of p-triphenylene homopolymer showed better performance in terms of efficiency and light output than a single layer of diphenylanthracene/oxadiazole. However, a single layer of polymer containing 9-mesityl-10-phenylanthracene gave the best performance, up to 21 nW and 0.3 nW/mA efficiency.

IT 34233-01-2, Tetrakis(triphenylphosphine)palladium

RL: CAT (Catalyst use); USES (Uses)  
(preparation of substituted norbornene monomers and ring-opening metathesis polymerization to obtain polynorbornenes for light-emitting devices)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 91 OF 109

ACCESSION NUMBER: 2000:126863 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 132:308994

TITLE: Synthesis and characterization of a novel light-emitting copolymer with improved charge-balancing property

AUTHOR(S): Xiao, Y.; Yu, W.-L.; Chen, Z.-K.; Lee, N. H. S.; Lai, Y.-H.; Huang, W.

CORPORATE SOURCE: Institute of Materials Research and Engineering, National University of Singapore, Singapore, Singapore

SOURCE: Thin Solid Films (2000), 363(1,2), 102-105

CODEN: THSFAP; ISSN: 0040-6090

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel copolymer, M-DCN-11, was synthesized via the Wittig reaction by incorporating a highly electroneg. unit, 2,5-dicyano-1,4-phenylenevinylene (DCN-FV). The copolymer was characterized by elemental anal., cyclic voltammetry, UV, PL, FTIR, GPC, etc. The copolymer has good solubility in common organic solvents and can be cast as quality thin films. It shows a partially reversible oxidation process with the oxidation potential onset at 1.1 V (vs. SCE), which is 0.8 V higher than that of MEH-PPV (0.3 V vs. SCE). The reversible reduction process shows four peaks at -1.2, -1.5, -1.6, and -1.8 V (vs. SCE), resp., starting from -0.9 V (vs. SCE). These data indicate that the polymer has been changed from a typical hole injection and transport material to a typical electron injection and transport material after incorporating the moiety bearing strong electron-withdrawing groups (DCN-FV) into the backbone.

IT 265123-89-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and electrochem. of cyano-substituted polyphenylenevinylenes with improved charge-balancing property)

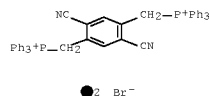
RN 265123-89-5 CAPLUS

CN Phosphonium, [(2,5-dicyano-1,4-phenylene)bis(methylene)]bis(triphenyl-, dibromide, polymer with 2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 232948-23-1

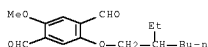
CMF C46 H36 N2 P2 . 2 Br



CM 2

CRN 203251-22-3

CMF C17 H24 O4



OS.CITING REF COUNT: 5

THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 15

THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 92 OF 109

ACCESSION NUMBER: 1999:579978 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 131:322998

TITLE: Sulfonation and Epoxidation of Substituted Polynorbornenes and Construction of Light-Emitting Devices

AUTHOR(S): Boyd, Thomas J.; Schrock, Richard R.

CORPORATE SOURCE: Department of Chemistry and Center for Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA

SOURCE: Macromolecules (1999), 32(20), 6608-6618

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

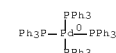
AB Efficient routes to sulfonation and epoxidn. of the double bonds in a polynorbornene backbone were found that do not interfere with side chain functional groups of interest for making light-emitting devices. Substituted norbornene monomers were prepared with ether or thioether linkages, which were stable to sulfonation. Oligomers (25mers or 50mers) of homo- and copolymers containing diphenylanthracene (for blue-light emission), oxadiazole (for electron transport), and p-triphenylene (for hole transport) side chains were prepared via ring-opening metathesis polymerization (ROMP) of the corresponding norbornene monomers. Sulfonation of the polynorbornene backbone yielded a polyanionic material that was suitable for creating films via sequential adsorption with the polycation, poly(allylamine HCl) (PAH). Devices with an indium tin oxide (ITO) anode and an aluminum cathode were constructed. A two-layer device comprised of a layer of diphenylanthracene/oxadiazole copolymer and layer of p-triphenylene homopolymer showed better performance in terms of efficiency and light output than a single layer of diphenylanthracene/oxadiazole. However, a single layer of polymer containing 9-mesityl-10-phenylanthracene gave the best performance, up to 21 nW and 0.3 nW/mA efficiency.

IT 34233-01-2, Tetrakis(triphenylphosphine)palladium

RL: CAT (Catalyst use); USES (Uses)  
(preparation of substituted norbornene monomers and ring-opening metathesis polymerization to obtain polynorbornenes for light-emitting devices)

RN 14221-01-3 CAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



IT 603-35-0, Triphenylphosphine, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reduction reagent; preparation of substituted norbornene monomers and ring-opening metathesis polymerization to obtain polynorbornenes for light-emitting devices)

RN 603-35-0 CAPLUS

CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 34

THERE ARE 34 CAPLUS RECORDS THAT CITE THIS RECORD (34 CITINGS)

REFERENCE COUNT: 62

THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 93 OF 109

ACCESSION NUMBER: 1999:558355 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 131:322986

TITLE: An alternating copolymer consisting of light emitting and electron transporting units

AUTHOR(S): Kim, Jai Kyeong; Yu, Jae Woong; Hong, Jae Min; Cho, Hyun Nam; Kim, Dong Young; Kim, Chung Yup

CORPORATE SOURCE: Polymer Materials Laboratory, Korea Institute of Science and Technology, Cheongryang, Seoul, 130-650, S. Korea

SOURCE: Journal of Materials Chemistry (1998), 9(9), 2171-2176

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An alternating copolymer composed of fluorenedivinylene as the light emitting unit and pyridine as the electron transporting one was synthesized using the Wittig reaction between [(9,9-dihexyl-9H-fluorene-2,7-diyl)bis(methylene)]bis(triphenylphosphonium) dibromide and pyridine-2,6-dicarbaldehyde. The copolymer which has conjugation throughout the mol. chain is soluble in both polar and nonpolar solvents. The copolymer has a band gap energy of 2.85 eV deduced from an UV-visible absorption spectrum, and ionization potential and electron affinity of -5.67 and -2.82 eV, resp., deduced from a cyclic voltammogram. The photoluminescence (PL) emission maximum was observed at 440 nm or 540 nm depending on the solvent used in making the solution for spin-casting. The copolymer was also capable of transporting electrons and could be used as an electron transporting layer. A light emitting diode (LED) fabricated with a blend of polyvinylcarbazole (PVK) with a fluorene-based light emitting material, and this copolymer as an

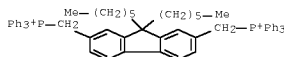
electron transporting layer, exhibited an electroluminescence (EL) emission maximum at 475 nm with a full width at the half maximum (FWHM) of 50 nm and a quantum efficiency of 0.1%, where indium tin oxide (ITO) and Al were used as the anode and cathode, resp.

II 202130-15-18  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(alternating copolymer consisting of light emitting fluorenedivinylene units and pyridine electron transporting units)

RN 202130-16-3 CAPLUS  
CN Phosphonium, [(9,9-dihexyl-9H-fluorene-2,7-diyl)bis(methylene)]bis(triphenyl-, dibromide, polymer with 2,6-pyridinedicarboxaldehyde (9CI) (CA INDEX NAME)

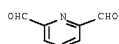
CM 1

CRN 187148-76-1  
CMF C63 H66 F2 . 2 Br



CM 2

CRN 5431-44-7  
CMF C7 H5 N O2



OS.CITING REF COUNT: 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (36 CITINGS)  
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 94 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1999:487732 CAPLUS Full-text  
DOCUMENT NUMBER: 131:287369  
TITLE: Oxadiazole-containing phenylene vinylene ether linkage copolymer as blue-green luminescent and electron transport material in polymer light-emitting diodes  
AUTHOR(S): Lee, Yuh-Zheng; Chen, Show-An

CORPORATE SOURCE: Chemical Engineering Department, National Tsing-Hua University, Hsin-chu, Taiwan

SOURCE: Synthetic Metals (1998), 105(3), 185-190  
CODEN: SYMDEZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

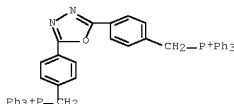
DOCUMENT TYPE: Journal

LANGUAGE: English

AB We report studies on a new ether-type poly(phenylene vinylene) (PFV) copolymer containing oxadiazole groups in the conjugated main chain. It can be used as a blue-green electroluminescent material and as an electron transport/hole blocking material in polymer light-emitting diodes using PFV as the emitting material. The bilayer devices with aluminum cathode show a maximum brightness of about 300 cd/m2 at about 21 V and a maximum external quantum efficiency of 0.1%. The quantum efficiency of the bilayer device is enhanced by a factor of 195 in comparison with that of the single layer device of PFV.

II 221615-56-18  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(monomer; oxadiazole-containing phenylene vinylene ether linkage copolymer as blue-green luminescent and electron transport material in polymer light-emitting diodes)

RN 221615-56-1 CAPLUS  
CN Phosphonium, 1,1'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[1,1,1-triphenyl-, bromide (1:2) (CA INDEX NAME)

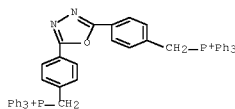


II 246246-52-65  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(oxadiazole-containing phenylene vinylene ether linkage copolymer as blue-green luminescent and electron transport material in polymer light-emitting diodes)

RN 246246-52-6 CAPLUS  
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,12-dodecanediylbis(oxy)]bis[3,5-dimethoxybenzaldehyde] (9CI) (CA INDEX NAME)

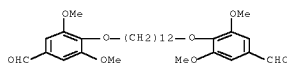
CM 1

CRN 221615-56-1  
CMF C52 H42 N2 O P2 . 2 Br



CM 2

CRN 204185-73-9  
CMF C30 H42 O8



II 603-35-0, Triphenylphosphine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxadiazole-containing phenylene vinylene ether linkage copolymer as blue-green luminescent and electron transport material in polymer light-emitting diodes)

RN 603-35-0 CAPLUS  
CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 34 THERE ARE 34 CAPLUS RECORDS THAT CITE THIS RECORD (34 CITINGS)  
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 95 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1999:379147 CAPLUS Full-text  
DOCUMENT NUMBER: 131:122474  
TITLE: Synthesis of organic EL materials with cyano group and evaluation of emission characteristics in organic EL devices  
AUTHOR(S): Kim, Dong Uk  
CORPORATE SOURCE: Dep. Science Education, Taegu National Univ. Education, Taegu, 705-715, S. Korea  
SOURCE: Journal of the Korean Chemical Society (1998)

), 43(3), 315-320

CODEN: JKCEZ; ISSN: 1017-2548

PUBLISHER: Korean Chemical Society

DOCUMENT TYPE: Journal

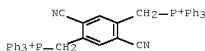
LANGUAGE: Korean

AB Novel electroluminescent materials were designed and synthesized. Polymers, PU-BCN, and low molar mass material with the same chromophores, D-BCN, were synthesized. A mol. structure of new chromophore material has been reported. The polymers were synthesized by the reaction of bis(styryl)benzene derivative with cyano groups for electron injection and transport and with phenylamine groups for hole injection and transport. Three devices were used: a device with PU-BCN and D-BCN as an emission layer which is a single-layer device (SL), a device with indium-tin oxide(ITO)/emission layer/MgAg as a DL-E device and a device with ITO/triphenylamine derivative/emission layer/MgAg as a DL-H device. The two emission materials, PU-BCN and D-BCN with the same emission-chromophore were evaluated in high c.d. EL emission maximum peaks of two material were detected at about 640 nm wavelength of red emission region.

II 232948-23-1  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of organic electroluminescent materials using)

RN 232948-23-1 CAPLUS

CN Phosphonium, 1,1'-[(2,5-dicyano-1,4-phenylene)bis(methylene)]bis[1,1,1-triphenyl-, bromide (1:2) (CA INDEX NAME)



L6 ANSWER 96 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1999:346202 CAPLUS Full-text  
DOCUMENT NUMBER: 130:353054

TITLE: Organic electroluminescent polymer for light-emitting diode and devices therefrom

INVENTOR(S): Jin, Sung-Ho; Kim, Woo-Hong; Son, Byung-Hee; Song, In-Sung; Han, Eun-Mi

PATENT ASSIGNEE(S): Samsung Display Devices Co. Ltd., S. Korea; Samsung General Chemicals Co. Ltd.

SOURCE: Brit. UK Pat. Appl., 47 pp.

CODEN: BAXXDU

DOCUMENT TYPE: Patent

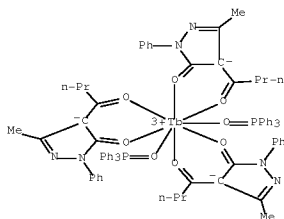
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

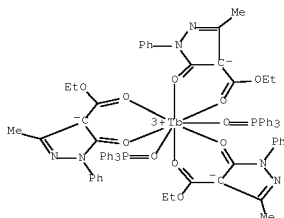
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2328212	A	19990217	GB 1998-17150	19980806 <--
GB 2328212	B	20001129		
JP 11124573	A	19990511	JP 1998-225951	19980810 <--
JP 2974070	B2	19991108		

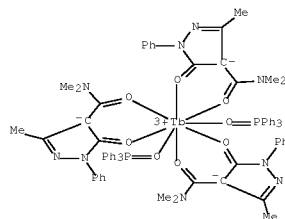




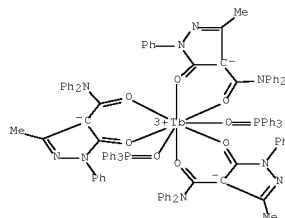
RN 223262-04-2 CAPLUS  
CN Terbium, tris[ethyl 4,5-dihydro-3-methyl-5-(oxo-κO)-1-phenyl-1H-pyrazole-4-carboxylato-κO4']bis(triphenylphosphine oxide-κO)-(9CI) (CA INDEX NAME)



RN 223262-06-4 CAPLUS  
CN Terbium, tris[4,5-dihydro-N,N,3-trimethyl-5-(oxo-κO)-1-phenyl-1H-pyrazole-4-carboxamidato-κO3]bis(triphenylphosphine oxide-κO)-(9CI) (CA INDEX NAME)

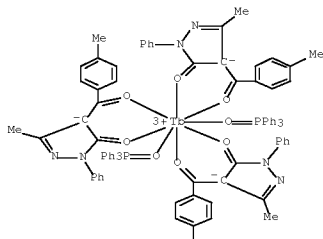


RN 223262-07-5 CAPLUS  
CN Terbium, tris[4,5-dihydro-3-methyl-5-(oxo-κO)-N,N,1-triphenyl-1H-pyrazole-4-carboxamidato-κO4]bis(triphenylphosphine oxide-κO)-(9CI) (CA INDEX NAME)



RN 223262-08-6 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-(4-methylbenzoyl-κO)-2-phenyl-3H-pyrazol-3-onato-κO3]bis(triphenylphosphine oxide-κO)-(CA INDEX NAME)

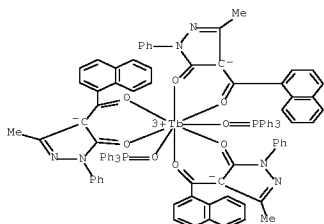
PAGE 1-A



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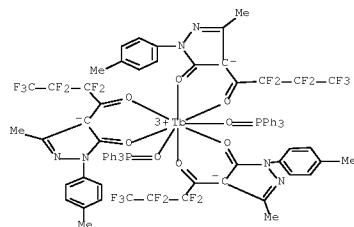
Me

RN 223262-09-7 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-(1-naphthalenylcarbonyl-κO)-1-phenyl-3H-pyrazol-3-onato-κO3]bis(triphenylphosphine oxide-κO)-(9CI) (CA INDEX NAME)



RN 223262-10-0 CAPLUS  
CN Terbium, tris[4-[2,2,3,3,4,4,4-heptafluoro-1-(oxo-κO)butyl]-2,4-

dihydro-5-methyl-2-(4-methylphenyl)-3H-pyrazol-3-onato-κO3]bis(triphenylphosphine oxide-κO)-(CA INDEX NAME)



OS.CITING REF COUNT: 36 THERE ARE 36 CAPLUS RECORDS THAT CITE THIS RECORD (36 CITINGS)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 98 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1999:9912 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 130:102684  
TITLE: Electroluminescent material  
INVENTOR(S): Kathirgamanathan, Poopathy  
PATENT ASSIGNEE(S): South Bank University Enterprises Ltd., UK  
SOURCE: PCT Int. Appl., 39 pp.  
CODEN: FIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9858037	A1	19981223	WO 1998-GB1773	19980617 <--
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AI, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
CA 2293532	A1	19981223	CA 1998-2293532	19980617 <--
AU 9881165	A	19990104	AU 1998-81165	19980617 <--
AU 741025	B2	20011122		
EP 990016	A1	20000405	EP 1998-930877	19980617 <--
EP 990016	B1	20050817		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			

JP 2002505701 T 20020219 JP 1999-503979 19980617 <--  
JP 4317926 B2 20090819  
AT 302250 T 20050915 AT 1998-930877 19980617 <--  
US 6524727 B1 20030225 US 1999-466523 19991217 <--  
JP 2008141223 A 20080619 JP 2008-42246 20080222  
JP 4405561 B2 20100127  
GB 1997-12483 A 19970617  
JP 1999-503979 A3 19980617  
WO 1998-GB1773 W 19980617

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 130102684

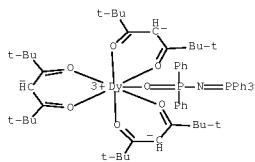
AB Electroluminescent devices comprising a transparent substrate on which is formed a layer of an electroluminescent material are described in which the electroluminescent material is a rare earth metal, actinide or transition metal organic complex which has a photoluminescent efficiency (PL) >25%, preferably >40%. Electroluminescent complexes are also described, in which the metal is a rare earth, transition metal, lanthanide, or an actinide and 21 of the ligands is either O-C(R')-C(R'')-C(R')-O or a 2,2'-Bis(pyridyl)ketone derivative (R' = (un)substituted aromatic or heterocyclic ring structures, a hydrocarbyl of a fluorocarbon, or tert-butyl; and R'' = (un)substituted aromatic or heterocyclic ring structures, a hydrocarbyl of a fluorocarbon, F, or H, or can be part of a copolymer). Preferably, the metals are selected from Sm(III), Eu(III), Tb(III), Dy(III), Yb(III), Lu(III), Gd(III), Eu(II), U(III), UO2(VI), and Th(III).

IT 156915-57-06 156952-11-3F 219121-71-2F  
219121-72-8G 219121-73-0P 219121-75-2P  
219121-76-3F 219121-79-0G

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(electroluminescent materials based on metal complexes and devices using them)

RN 156915-57-0 CAPLUS

CN Dysprosium, [P,P-diphenyl-N-(triphenylphosphoranylidene)phosphinic amide-ko]tris(2,2,6,6-tetramethyl-3,5-heptanedionato-ko,ko')- (9CI) (CA INDEX NAME)

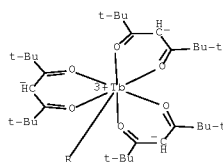


RN 156952-11-3 CAPLUS

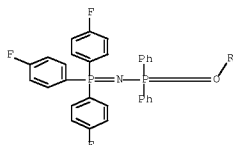
CN Europium, tris(1,3-diphenyl-1,3-propanedionato-ko,ko') [P,P-diphenyl-N-(triphenylphosphoranylidene)phosphinic amide-ko]- (9CI) (CA INDEX NAME)

RN 219121-73-0 CAPLUS

CN Terbium, [P,P-diphenyl-N-[tris(4-fluorophenyl)phosphoranylidene]phosphinic amide-ko]tris(2,2,6,6-tetramethyl-3,5-heptanedionato-ko,ko')- (9CI) (CA INDEX NAME)



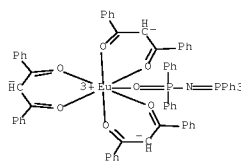
PAGE 1-A



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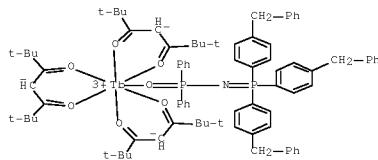
RN 219121-75-2 CAPLUS

CN Europium, tris(1,3-diphenyl-1,3-propanedionato-ko,ko') [P,P-diphenyl-N-[tris(4-methoxyphenyl)phosphoranylidene]phosphinic amide-ko]- (9CI) (CA INDEX NAME)



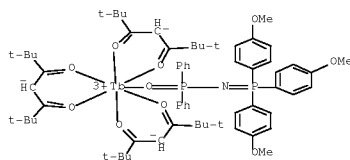
RN 219121-71-8 CAPLUS

CN Terbium, [P,P-diphenyl-N-[tris(4-phenylmethyl)phenyl]phosphoranylidene]phosphinic amide-ko]tris(2,2,6,6-tetramethyl-3,5-heptanedionato-ko,ko')- (9CI) (CA INDEX NAME)



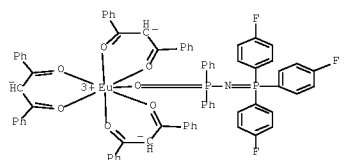
RN 219121-72-9 CAPLUS

CN Terbium, [P,P-diphenyl-N-[tris(4-methoxyphenyl)phosphoranylidene]phosphinic amide-ko]tris(2,2,6,6-tetramethyl-3,5-heptanedionato-ko,ko')- (9CI) (CA INDEX NAME)



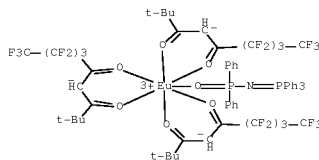
RN 219121-76-3 CAPLUS

CN Europium, tris(1,3-diphenyl-1,3-propanedionato-ko,ko') [P,P-diphenyl-N-[tris(4-fluorophenyl)phosphoranylidene]phosphinic amide-ko]- (9CI) (CA INDEX NAME)

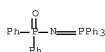


RN 219121-78-5 CAPLUS

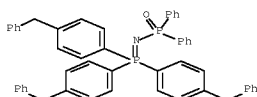
CN Europium, [P,P-diphenyl-N-(triphenylphosphoranylidene)phosphinic amide-ko]tris(6,6,7,7,8,8,9,9,9-nonafluoro-2,2-dimethyl-3,5-nonanedionato-ko,ko')- (9CI) (CA INDEX NAME)



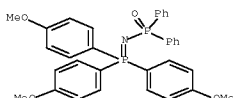
IT 2156-69-6 218917-64-7 218917-67-0  
218917-70-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electroluminescent materials based on metal complexes and devices using them)  
RN 2156-69-6 CAPLUS  
CN Phosphinic amide, P,P-diphenyl-N-(triphenylphosphoranylidene)- (CA INDEX NAME)



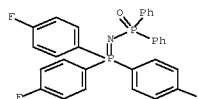
RN 218917-64-7 CAPLUS  
CN Phosphinic amide, P,P-diphenyl-N-[tris(4-(phenylmethyl)phenyl)phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 218917-67-0 CAPLUS  
CN Phosphinic amide, P,P-diphenyl-N-[tris(4-methoxyphenyl)phosphoranylidene]- (9CI) (CA INDEX NAME)



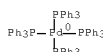
RN 218917-70-5 CAPLUS  
CN Phosphinic amide, P,P-diphenyl-N-[tris(4-fluorophenyl)phosphoranylidene]- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 25 THERE ARE 25 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)  
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 99 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1998:411048 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 129:68216  
ORIGINAL REFERENCE NO.: 129:14163a,14166a  
TITLE: Polymers with High Electron Affinities for Light-Emitting Diodes  
AUTHOR(S): Peng, Zhonghua; Galvin, Mary E.  
CORPORATE SOURCE: Bell Laboratories, Murray Hill, NJ, 07974, USA  
SOURCE: Chemistry of Materials (1998), 10(7), 1785-1788  
CODEN: CMATEX; ISSN: 0897-4756  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A cyano-containing poly(phenylenevinylene) [CN-PPV] was synthesized by the Heck coupling reaction and pyrazine-containing PPV was also prepared. Careful control of reaction conditions is required to avoid side reactions and the polymer mol. weight is usually low. Both polymers show good electron injection/transport ability and luminescence properties. Single layer LED test devices with the configuration of (ITO/polymer/Al) show external quantum efficiency up to 0.025%.  
IT 14221-01-3, Tetrakis(triphenylphosphine)palladium  
RL: CAT (Catalyst use); USES (Uses)  
(preparation and luminescence of poly(phenylenevinylene)s containing cyano and pyrazine groups and quantum efficiency of ITO/polymer/Al LEDs)

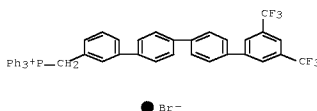
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



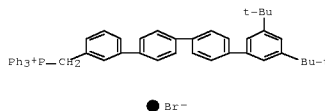
OS.CITING REF COUNT: 71 THERE ARE 71 CAPLUS RECORDS THAT CITE THIS RECORD (71 CITINGS)  
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 100 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1998:49145 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 128:198102  
ORIGINAL REFERENCE NO.: 128:39045a,39048a  
TITLE: Electron tunneling in organic bilayer light-emitting diodes with a novel electron-transporting polymer  
AUTHOR(S): Pommerene, J.; Selz, A.; Book, K.; Koch, F.; Zimmermann, U.; Unterlechner, Chr.; Wendorff, J. H.; Heitz, W.; Bassler, H.  
CORPORATE SOURCE: Inst. Physical Macromolecular Chemistry and Center of Material Science, Philipps-Univ., Marburg, D-35032, Germany  
SOURCE: Macromolecules (1997), 30(26), +8270-8277  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Bilayer light-emitting diodes were fabricated by combining hole-transporting tris(tribenamine) or poly[(2,5-bis((2-ethylhexyloxy)-1,4-phenylene)vinylene)] (EH-PPV) with new electron-transporting polystyrene copolymer carrying tert-Bu or CF3-substituted quaterphenyl substituents as charge-transporting moieties. The latter are resistant against recombination and favor internal charge accumulation by virtue of low-lying HOMO and LUMO positions. When LEDs with interfacial electron barriers >0.5 eV are addressed by a rectangular voltage pulse, a step-function-like onset of the electroluminescence is observed after an extended delay time that depends on the time period between successive voltage pulses. It reflects the commencement of electron tunneling once the interfacial charge d. has reached a critical value. The exptl. results are in accordance with model calcs.  
IT 203639-02-5 203639-04-7  
RL: PREP (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(electron tunneling in organic bilayer light-emitting diodes with a novel electron-transporting polymer prepared using)

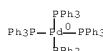
RN 203639-02-5 CAPLUS  
CN Phosphonium, [[3'''',5'''-bis(trifluoromethyl)[1,1':4',1'':4'',1'''-quaterphenyl]-3-yl]methyl]triphenyl-, bromide (9CI) (CA INDEX NAME)



RN 203639-04-7 CAPLUS  
CN Phosphonium, [[3'''',5'''-bis(1,1-dimethylethyl)[1,1':4',1'':4'',1'''-quaterphenyl]-3-yl]methyl]triphenyl-, bromide (9CI) (CA INDEX NAME)



IT 14221-01-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electron tunneling in organic bilayer light-emitting diodes with a novel electron-transporting polymer prepared using)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)

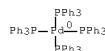


OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)  
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 101 OF 109 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1997:740774 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 128:13626  
ORIGINAL REFERENCE NO.: 128:2659a,2662a  
TITLE: New Well-Defined Poly(2,7-fluorene) Derivatives: Photoluminescence and Base Doping  
AUTHOR(S): Ranger, Maxime; Rondeau, Dany; Leclerc, Mario  
CORPORATE SOURCE: Departement de Chimie, Universite de Montreal, Montreal, QC, H3C 3J7, Can.  
SOURCE: Macromolecules (1997), 30(25), 7686-7691  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Well-defined poly(2,7-fluorene) derivs. were prepared through Pd-catalyzed couplings between various 9,9-disubstituted or 9-monosubstituted 2,7-dibromofluorenes and 2,7-bis(4,4',5,5'-tetramethyl-1,3,2-dioxaborolan-2'-yl)-9,9-dioctylfluorene. Using this versatile synthetic method, processable polyfluorenes were obtained in good yields. In solution, all these neutral yellow polymers exhibit blue emission (maximum of emission around 410 nm) with high quantum yields (up to 0.87). Moreover, novel acidic polyfluorene derivs. were synthesized (e.g., poly[2,7'-(alkyl 9,9-dioctyl-7,2'-bifluorene-9'-carboxylate)]s), which show elec. conductivities of 10-6-10-5 S/cm. upon base doping. This new doping method for conjugated polymers could open the way to the preparation of air-stable electron-injecting electrodes. Both photophys.

and elec. properties of these polymers are quite promising for the fabrication of efficient blue-light-emitting devices.

IT 14221-01-3P, Tetrakis(triphenylphosphine)palladium(0)  
RL: CAT (Catalyst use); SWF (Synthetic preparation); PREP (Preparation); USES (Uses)  
(catalyst; preparation of polyfluorene derivs. and their photoluminescence and base doping)  
RN 14221-01-3 CAPLUS  
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



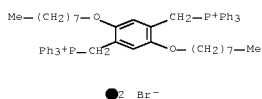
OS.CITING REF COUNT: 388 THERE ARE 388 CAPLUS RECORDS THAT CITE THIS RECORD (397 CITINGS)  
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 102 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:738659 CAPLUS Full-text  
DOCUMENT NUMBER: 127:364953  
ORIGINAL REFERENCE NO.: 127:71279a,71282a  
TITLE: Polymer light-emitting diodes utilizing arylene-vinylene copolymers as light-emitting PFV materials  
AUTHOR(S): Ohnishi, Toshihiro; Doi, Shuji; Tsuchida, Yoshihiko; Noguchi, Takanobu  
CORPORATE SOURCE: Tsukuba Research Laboratory, Sumitomo Chemical Company, Ltd., Tsukuba, 300-32, Japan  
SOURCE: ACS Symposium Series (1997), 672 (Photonic and Optoelectronic Polymers), 345-357  
CODEN: ACSMC8; ISSN: 0097-6156  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Polymer light-emitting diode (P-LED) devices were fabricated using highly luminous poly(arylene vinylene) derivs., e.g., poly(2,5-diethoxy-p-phenylene vinylene). Structural irregularities in the conjugated polymers led to highly luminous polymers due to confinement of excitons. The irregularities can be generated by copolymer of conjugated/non-conjugated segments, m/p-phenylene vinylenes and alkyl/alkoxy-substituted phenylene vinylenes. Among copolymers, the m/p-alkyl phenylene vinylene copolymer gave the most efficient P-LED device because of the good balance of exciton confinement and charge transport. The optimized P-LEDs showed a maximum luminance of 55,000 cd/m2.

IT 532985-11-3  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(polymer LEDs of poly(arylene-vinylene)s with structural irregularities leading to exciton confinement and high luminescence)  
RN 532985-11-8 CAPLUS  
CN Phosphonium, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,6-hexanediylbis(oxy)]bis[benzaldehyde] (9CI) (CA INDEX NAME)

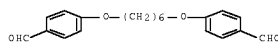
CM 1

CRN 88542-19-2  
CMP C60 H70 O2 P2 . 2 Br



CM 2

CRN 77355-02-3  
CMP C20 H22 O4

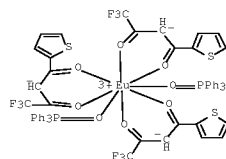


OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS RECORD (16 CITINGS)  
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

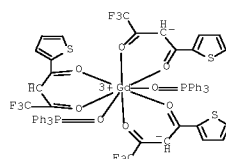
L6 ANSWER 103 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:714831 CAPLUS Full-text  
DOCUMENT NUMBER: 128:67944  
ORIGINAL REFERENCE NO.: 128:13175a,13178a  
TITLE: Temperature-dependent electroluminescence from (Eu, Gd) coordination complexes  
AUTHOR(S): Zhang, Xianmin; Sun, Runquang; Zheng, Qianbing; Kobayashi, Takayoshi; Li, Wenlian  
CORPORATE SOURCE: Graduate School of Science, Department of Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113, Japan  
SOURCE: Applied Physics Letters (1997), 71(18), 2596-2598  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Light emission from single-layered electroluminescent devices is described in which (Eu, Gd) coordination complexes, (Eu0.1Gd0.9)(TTA)3(TPPO)2, and electron transport material oxadiazole derivative, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole, are dispersed in a hole-transporting host polymer poly(N-vinylcarbazole) film. The color of the emitted electroluminescence changes smoothly from green-white to red with temperature varying from 77 to 300 K This phenomenon is discussed in terms of temperature dependent yields of phosphorescence from the triplet state of the Gd and Eu

chelates and the intermol. energy transfer from Gd-chelate to Eu-chelate cages.

IT 12121-29-8G, solid solution with gadolinium analog  
290292-99-5G, Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-0,0']bis(triphenylphosphine oxide-O)-, solid solution with europium analog  
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(temperature-dependent electroluminescence from (europium, gadolinium) coordination complexes in LED with energy transfer, phosphorescence, and current-voltage curves)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-ko1,ko3]bis(triphenylphosphine oxide-ko)- (9CI) (CA INDEX NAME)



RN 200292-99-5 CAPLUS  
CN Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato-ko,ko']bis(triphenylphosphine oxide-ko)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 46 THERE ARE 46 CAPLUS RECORDS THAT CITE THIS RECORD (46 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

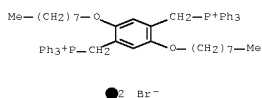
L6 ANSWER 104 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:580033 CAPLUS Full-text  
DOCUMENT NUMBER: 127:285208  
ORIGINAL REFERENCE NO.: 127:55567a,55570a  
TITLE: Efficient multilayer electroluminescence devices with poly(m-phenylenevinylene-co-2,5-diethoxy-p-phenylenevinylene) as the emissive layer  
AUTHOR(S): O'Brien, D.; Bleyer, A.; Lidzey, D. G.; Bradley, D. D. C.; Teutsui, T.  
CORPORATE SOURCE: Hicks Building, Department of Physics and Centre for Molecular Materials, University of Sheffield, Hounsfield Road, Sheffield, S3 7RH, UK  
SOURCE: Journal of Applied Physics (1997), 82(5), 2662-2670  
CODEN: JAPFAU; ISSN: 0021-8979  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The use of a new highly luminescent conjugated polymer as an emissive layer in single and multilayer electroluminescence devices is reported. Poly(m-phenylenevinylene-co-2,5-diethoxy-p-phenylenevinylene) [PmPV-co-DoctOPV] was prepared via a Wittig synthesis reaction. The resulting polymer has a high photoluminescence quantum efficiency in the solid state with an emission spectrum peaked at 506 nm (2.45 eV) in the green. Electroluminescence devices were fabricated with an ITO anode and a MgAg cathode. Three different structures were studied: (i) single layer devices containing only PmPV-co-DoctOPV; (ii) double layer devices with PmPV-co-DoctOPV and an evaporated film of 1,3-bis(4-tert-butylphenyl)-1,3,4-oxadiazole [OXD-7] as an electron transport layer; (iii) triple layer devices containing PmPV-co-DoctOPV, OXD-7 and in addition a polyvinylcarbazole hole transport layer. Electroluminescence external quantum efficiencies for these devices were found to be up to 0.08, 0.55, and 1, resp., corresponding to luminous efficiencies of .apprx.0.5, .apprx.3, and .apprx.6 lm/W and power efficiencies of 8.5+10-5, 5.9+10-4, and 6.0+10-4 W/W.

IT 196711-77-0  
RL: DEV (Device component use); USES (Uses)  
(preparation and multilayer electroluminescence devices with poly(m-phenylenevinylene-co-2,5-diethoxy-p-phenylenevinylene) as the emissive layer)

RN 196711-77-0 CAPLUS  
CN Phosphonium, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with [1,4-phenylenebis(methylene)]bis[triphenylphosphonium] dibromide (9CI) (CA INDEX NAME)

CM 1

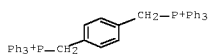
CRN 88542-19-2  
CMP C60 H70 O2 P2 . 2 Br



CM 2

CRN 40817-03-6

CMF C44 H38 P2 . 2 Br

● 2 Br<sup>-</sup>

OS.CITING REF COUNT: 76 THERE ARE 76 CAPLUS RECORDS THAT CITE THIS RECORD (80 CITINGS)

REFERENCE COUNT: 70 THERE ARE 70 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 105 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:334772 CAPLUS Full-text  
DOCUMENT NUMBER: 126:310316  
ORIGINAL REFERENCE NO.: 126:60025a,60028a  
TITLE: Electroluminescent devices  
INVENTOR(S): Jonas, Friedrich; Wehrmann, Rolf; Elschner, Andreas; Dujardin, Ralf; Meier, Helmut-Martin  
PATENT ASSIGNEE(S): Bayer A.-G., Germany  
SOURCE: Eur. Pat. Appl., 27 pp.  
CODEN: EFXDXW  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 764712	A2	19970326	EP 1996-114371	19960909 <--
EP 764712	A3	19970820		
R: BE, CH, DE, FI, FR, GB, IT, LI, NL, SE				
DE 19535063	A1	19970327	DE 1995-19535063	19950921 <--
JP 09125054	A	19970513	JP 1996-266752	19960917 <--
CN 1159131	A	19970910	CN 1996-122547	19960920 <--
DE 1995-19535063 A 19950921				

PRIORITY APPLN. INFO.:  
OTHER SOURCE(S): MARPAT 126:310316

AB Electroluminescent devices which comprise 22 electrodes (e.g., a base electrode and a top electrode), a light-emitting layer, and a stabilizer which protects against air, thermal oxidation, ozone, and UV radiation are described in which the light-emitting layer may also include 21 addnl. layers selected from hole-transporting, hole-injecting, and electron-injecting films. The stabilizer may be incorporated within the light-emitting layer.

IT 603-33-0, Triphenylphosphine, uses  
RL: DEV (Device component use); USES (Uses)  
(stabilized electroluminescent devices)

RN 603-35-0 CAPLUS

CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L6 ANSWER 106 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1996:588331 CAPLUS Full-text  
DOCUMENT NUMBER: 125:208095  
ORIGINAL REFERENCE NO.: 125:38655a,38688a  
TITLE: Organic electroluminescent device with gas barrier film  
INVENTOR(S): Oonishi, Toshihiro; Noguchi, Masanobu; Doi, Hideji; Tsuchida, Yoshihiko  
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08185980	A	19960716	JP 1994-325968	19941227 <--
JP 3906486	B2	20070418		
JP 2007035647	A	20070208	JP 2006-255387	20060921
JP 4162025	B2	20081008		
JP 2008004561	A	20080110	JP 2007-216919	20070823
JP 4333786	B2	20090916		

PRIORITY APPLN. INFO.:  
JP 1994-325968 A3 19941227  
JP 2006-255387 A3 20060921

AB The device contains a polymer luminescent layer sandwiched by a pair of electrodes comprising a cathode and an anode coated with a base material with O permeability ≤200 cm<sup>3</sup>/m<sup>2</sup>-24 h-atm and vapor permeability ≤200 g/m<sup>2</sup>-24 h-atmospheric. The device shows good durability.

IT 139289-79-5P  
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
(luminescent layer; organic electroluminescent device containing polymer luminescent layer and gas barrier film)

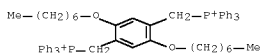
RN 139289-79-5 CAPLUS

CN Phosphonium, [[2,5-bis(heptyloxy)-1,4-phenylene]bis(methylene)]bis(triphenyl-, dichloride, polymer with 1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 139289-78-4

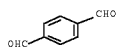
CMF C58 H66 O2 P2 . 2 Cl

● 2 Cl<sup>-</sup>

CM 2

CRN 623-27-8

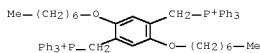
CMF C8 H6 O2



IT 139289-79-4P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; organic electroluminescent device containing polymer luminescent layer and gas barrier film)

RN 139289-78-4 CAPLUS

CN Phosphonium, [[2,5-bis(heptyloxy)-1,4-phenylene]bis(methylene)]bis(triphenyl-, dichloride (9CI) (CA INDEX NAME)

● 2 Cl<sup>-</sup>

IT 603-33-0D, Triphenylphosphine, reaction product with dioctyloxy-p-xylylenedichloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(organic electroluminescent device containing polymer luminescent layer and gas barrier film)

RN 603-35-0 CAPLUS

CN Phosphine, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L6 ANSWER 107 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1996:569461 CAPLUS Full-text  
DOCUMENT NUMBER: 125:208018  
ORIGINAL REFERENCE NO.: 125:38677a,38680a  
TITLE: Fabrication and components of organic electroluminescent device with multi-layered structure.  
INVENTOR(S): Forrest, Stephen R.; Thompson, Mark E.; Burrows, Paul E.; Sapochak, Linda S.; McCarty, Dennis W.  
PATENT ASSIGNEE(S): Trustees of Princeton University, USA  
SOURCE: Fr. Demande, 62 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 7  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2728082	A1	19960614	FR 1995-14793	19951213 <--
FR 2728082	B1	19990528		
US 5707745	A	19980113	US 1994-354674	19941213 <--
CA 2206769	A1	19960627	CA 1995-2206769	19951206 <--
EP 808244	A2	19971126	EP 1995-943680	19951206 <--
EP 808244	B1	20020703		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
GB 2313478	A	19971126	GB 1997-12218	19951206 <--
GB 2313478	B	19990414		
DE 19581862	T0	19971211	DE 1995-19581862	19951206 <--
BR 9510076	A	19971230	BR 1995-10076	19951206 <--
CN 1170383	A	19980114	CN 1995-196807	19951206 <--
CN 1096936	C	20021225		
JP 10503878	T	19980407	JP 1996-519830	19951206 <--
JP 3496681	B2	20040216		
AU 690413	B2	19980423	AU 1996-45093	19951206 <--
ES 2117590	A1	19980801	ES 1996-50018	19951206 <--
ES 2117590	B1	19990301		
FL 179550	B1	20000929	FL 1995-320750	19951206 <--
CN 1293425	A	20010502	CN 2000-2000109578	19951206 <--
CN 1236410	C	20060111		
EP 1119059	A2	20010725	EP 2001-108236	19951206 <--
EP 1119059	A3	20020731		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
AT 220246	T	20020715	AT 1995-943680	19951206 <--
IN 193107	A1	20040626	IN 1995-MA1608	19951206 <--
US 5757026	A	19980526	US 1996-632322	19960415 <--
FI 9702176	A	19970717	FI 1997-2176	19970521 <--
NO 9702706	A	19970811	NO 1997-2706	19970612 <--
US 6030700	A	20000229	US 1997-966485	19971107 <--
US 20010014391	A1	20010816	US 1999-458488	19991209 <--
US 6365270	B2	20020402		
CN 1291068	A	20010411	CN 2000-109579	20000705 <--
JP 2001273979	A	20011005	JP 2001-72847	20010314 <--
JP 4053734	B2	20080227		

PRIORITY APPLN. INFO.:  
US 1994-354674 A 19941213  
CN 1995-196807 A3 19951206  
EP 1995-943680 A3 19951206



JP 1996-519830 A3 19951206  
WO 1995-US15790 W 19951206  
US 1997-966485 A1 19971107

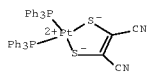
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A device having a stepped layered structure of light emitting organic films is described, in which the light emitting films are stacked on top of each other, separated by conducting transparent metallic layers. A light emitting film comprises of a thin electroluminescent emissive layer (EL), possibly sandwiched between an electron transport layer and a hole transport layer. The device produces a desired combination of discrete wavelengths (e.g. red, green and blue) by applying appropriate elec. potentials between the metallic layers to the ELs. The EL can be an emissive complex of metals and organic ligands (e.g. trivalent metal quinolinolato complexes or zinc Schiff base complexes). A number of suitable bidentate ligands are also described. Light emitting polymers can also be used in this structure. Various structural variations (including a hermetically sealed device) and fabrication methods (e.g. dry etching processes) are described.

IT 62637-80-3  
RL: DEV (Device component use); USES (Uses)  
(fabrication and components of organic electroluminescent device with multi-layered structure)

RN 62637-80-3 CAPLUS

CN Platinum, [2,3-di(mercapto-ks)-2-butenedinitrilato(2-  
)bis(triphenylphosphine)-, (SP-4-2)- (CA INDEX NAME)



OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

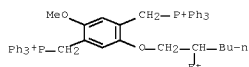
L6 ANSWER 108 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1995:539097 CAPLUS Full-text  
DOCUMENT NUMBER: 125:287755  
ORIGINAL REFERENCE NO.: 125:53603a,53606a  
TITLE: Systematic investigation of the effects of organic film structure on light emitting diode performance  
AUTHOR(S): Joswick, M. D.; Campbell, I. H.; Barashkov, N. N.; Ferraris, J. P.  
CORPORATE SOURCE: Los Alamos National Lab., Los Alamos, NM, 87545, USA  
SOURCE: Journal of Applied Physics (1996), 80(5), 2883-2890  
CODEN: JAPFAU; ISSN: 0021-8979  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The effects of organic film structure on LED performance was studied. Metal/organic film/metal LEDs were fabricated using a 5 ring, poly(phenylene vinylene) related oligomer as the active layer. The structure of the vacuum

evaporated oligomer films was varied from amorphous to polycryst. by changing the substrate temperature during deposition. The intrinsic properties of the oligomer films and the LED performance were measured. The measured intrinsic film properties include: optical absorption, photoluminescence (PL) spectra, PL lifetime, PL efficiency, and effective carrier mobility. The measured device characteristics include current-voltage, capacitance-voltage, electroluminescence (EL) efficiency, and the contact metal/organic film Schottky barrier heights. The optical absorption and PL properties of the films are weakly dependent on film structure but the effective carrier mobility decreases with increasing crystallinity. The EL quantum efficiency decreases by >1 order of magnitude, the drive voltage at a fixed current increases, and the electron Schottky barrier height increases as the crystallinity of the film is increased. The diode current-voltage characteristic is determined by the dominant hole current and the electroluminescence efficiency is controlled by the contact limited electron injection. These results demonstrate significant effects of organic film structure on the performance of organic LEDs.

IT 161960-51-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction with stilbenealdehyde and butoxide)

RN 161960-51-6 CAPLUS

CN Phosphonium, 1,1'-[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis(methylene)]bis[1,1,1-triphenyl-, chloride (1:2) (CA INDEX NAME)



● 2 Cl-

OS.CITING REF COUNT: 56 THERE ARE 56 CAPLUS RECORDS THAT CITE THIS RECORD (56 CITINGS)

L6 ANSWER 109 OF 109 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1995:957521 CAPLUS Full-text  
DOCUMENT NUMBER: 124:10417  
ORIGINAL REFERENCE NO.: 124:2171a,2174a  
TITLE: Comparison of device performance in two thin-film electroluminescent devices made of vacuum-sublimed dye film and spin-coated polymer film  
AUTHOR(S): Kim, Dong Uk; Aminaka, Ei-ichiro; Tsutsui, Tetsuo; Saito, Shogo  
CORPORATE SOURCE: Dep. of Materials Science and Technology, Kyushu Univ., Fukuoka, 816, Japan  
SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1995), 34(11), 6255-9  
CODEN: JAPFDE; ISSN: 0021-4922  
PUBLISHER: Japanese Journal of Applied Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Electroluminescent (EL) characteristics in EL device made of vacuum-sublimed dye films and spin-coated polymer films were compared. Low-molar-mass dye, 9,10-bis[4-(N,N-diphenylamino)styryl]anthracene (dye-BSA), for the preparation of vacuum-sublimed films, and polymer with BSA chromophore linked with alkyl ether groups (polymer-BSA) were employed. Single-layer devices, indium-tin oxide (ITO)/dye-BSA/MgAg and ITO/polymer-BSA/MgAg were prepared, and EL performances were compared. Double-layer devices which have an oxadiazole derivative (OXD-7) electron transport layer, ITO/dye-BSA/OXD-7/MgAg and ITO/polymer-BSA/OXD-7/MgAg, were also prepared. The c.d.-voltage relationships between dye-BSA devices and polymer-BSA devices were considerably different mainly due to the poor film quality of polymer-BSA. The comparisons of the luminance-c.d. relationships of the devices with two classes of BSA films showed that the polymer-BSA devices exhibited similar EL characteristics as the dye-BSA devices in the region of c.d. higher than 10 mA/cm2. The possibility of the use of common material design concept for low-molar-mass materials and polymers was discussed.

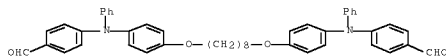
IT 171422-55-2  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(comparison of device performance in two thin-film electroluminescent devices made of vacuum-sublimed dye film and spin-coated polymer film)

RN 171422-55-2 CAPLUS

CN Phosphonium, [1,4-phenylenebis(methylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediylbis(oxy-4,1-phenylene(phenylimino))]bis(benzaldehyde) (9CI) (CA INDEX NAME)

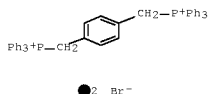
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CRN 164728-26-1  
CMF C46 H44 N2 O4



CM 2

CRN 40817-03-6  
CMF C44 H38 F2 . 2 Br



OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)

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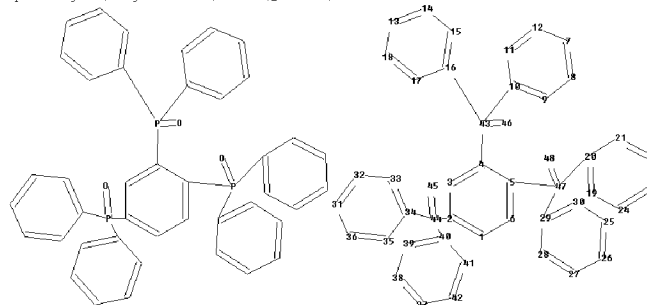
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L6 109 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L5 AND (FY<2005 OR AY<2005)  
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L1 STRUCTURE UPLOADED

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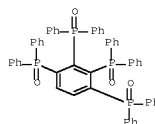
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L3 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1999:511999 CAPLUS Full-text  
DOCUMENT NUMBER: 131:271923  
TITLE: Synthesis and NMR spectra of derivatives of the

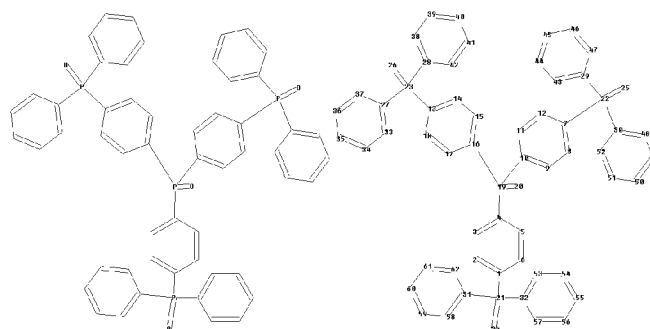
polykis(diphenylphosphino)benzenes, (Ph<sub>2</sub>P)<sub>n</sub>C<sub>6</sub>H<sub>6</sub>-n [n = 2 to 4]  
AUTHOR(S): McFarlane, H. Christina E.; McFarlane, William  
CORPORATE SOURCE: Department of Chemistry, University of Newcastle upon Tyne, Newcastle upon Tyne, NE1 7RU, UK  
SOURCE: Polyhedron (1999), 18(16), 2117-2127  
CODEN: PLYHDE; ISSN: 0277-5387  
PUBLISHER: Elsevier Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB 111 Derivs. of the polykis(diphenylphosphino)benzenes, (Ph<sub>2</sub>P)<sub>n</sub>C<sub>6</sub>H<sub>6</sub>-n [n = 2 to 4] obtained by oxidation or reaction with S, Se, iodomethane, M(CO)<sub>6</sub> [M = Cr, Mo, W], [codRh-μ-Cl]<sub>2</sub>, or cis-(PhCN)<sub>2</sub>MCl<sub>2</sub> [M = Pd, Pt], are reported together with their <sup>31</sup>P and selected other NMR parameters. The reactions generally follow predictable courses, although stereochem. factors affect the range of products obtained and can lead to significant structural distortion in extreme cases. The <sup>31</sup>P chemical shifts and more particularly vicinal coupling consts. are also markedly influenced by such factors, to the extent that in species with three or more adjacent Ph<sub>2</sub>P moieties they may be of limited diagnostic value.  
IT 245337-31-1F, 1,2,3,4-Tetrakis(diphenylphosphinyl)benzene  
RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and phosphorus-31 NMR of)  
RN 245337-91-1 CAPLUS  
CN Phosphine oxide, diphenyl[2,3,4-tris(diphenylphosphinyl)phenyl]- (CA INDEX NAME)



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)  
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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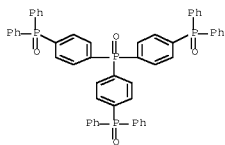
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L6 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2009:1137090 CAPLUS Full-text  
DOCUMENT NUMBER: 151:369649  
TITLE: Organic electroluminescent device and its manufacturing method  
INVENTOR(S): Goto, Yasuyuki; Nando, Koji; Kakinoki, Izumi; Uda, Akifumi; Matsushio, Yukari  
PATENT ASSIGNEE(S): Kyushu Electric Power Co., Ltd., Japan; Daiden Co., Ltd.  
SOURCE: Jpn. Kokai Tokkyo Koho, 26pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2009212238	A	20090917	JP 2008-52552	20080303
PRIORITY APPLN. INFO.:			JP 2008-52552	20080303
AB	The invention relates to an organic electroluminescent device, comprising a ZnO particle-dispersed organic layer containing phosphorus compound represented by Ar <sub>2</sub> (Ar <sub>1</sub> )PO(Ar <sub>3</sub> ) [Ar <sub>1</sub> -Ar <sub>3</sub> = aromatic residues], wherein the ZnO particle-dispersed organic layer is suited for use as an electron transport layer in order to realize a low voltage-driven device.			
IT	868520-12-J RL: TEM (Technical or engineered material use); USES (Uses) (organic electroluminescent device)			
RN	868520-12-1 CAPLUS			
CN	Phosphine oxide, tris[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)			



L6 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:1119967 CAPLUS Full-text  
DOCUMENT NUMBER: 147:436473  
TITLE: Organic-inorganic composite semiconductor material,  
liquid material, organic light emitting element,  
method of manufacturing organic light emitting  
element, light emitting device and electronic  
apparatus  
INVENTOR(S): Makiura, Rie; Okuyama, Tomoyuki; Kawase, Takeo; Noto,  
Mitsuharu; Hayashida, Tsuyoshi; Goto, Yasuyuki  
PATENT ASSIGNEE(S): Seiko Epson Corporation, Japan; Dyden Corporation;  
Kyushu Electric Power Company, Incorporated  
SOURCE: U.S. Pat. Appl. Publ., 28pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070228356	A1	200711004	US 2007-691832	20070327
JP 2007281039	A	200711025	JP 2006-102556	20060403
JP 4273132	B2	20090603		
CN 101055924	A	200711017	CN 2007-10092166	20070402
KR 2007099474	A	200711009	KR 2007-32795	20070403
JP 2009135510	A	20090618	JP 2008-335500	20081227
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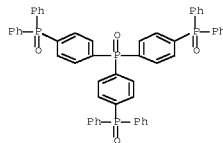
PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 147:436473

AB Organic-inorg. composite semiconductor material including material mainly made of at least one kind of a metal ion selected from an alkali metal ion, an alkali earth metal ion and a rare-earth metal ion, and a chemical compound represented by the following general formula (Ar1)(Ar2)(Ar3)P:O, where Ar1, Ar2 and Ar3 are each independently an aromatic ring group that optionally has a substituent group is described. An organic light emitting element comprising an electron transport film comprising the organic-inorg. composite material is also described. A liquid material comprising a metal compound and the organic-inorg. composite material is also described. A method of fabricating the organic light-emitting element is also described.

IT 868520-12-1  
RL: TEM (Technical or engineered material use); USES (Uses)

(electron transport layer; organic-inorg. composite semiconductor material, liquid material, organic light emitting element, method of manufacturing

organic light emitting element)  
RN 868520-12-1 CAPLUS  
CN Phosphine oxide, tris[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)



L6 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1170949 CAPLUS Full-text  
DOCUMENT NUMBER: 143:449039  
TITLE: Organic compound containing phosphorus used in organic electroluminescent device and its preparation  
INVENTOR(S): Goto, Yasuyuki; Noto, Mitsuharu; Hayashida, Tsuyoshi; Era, Masanao  
PATENT ASSIGNEE(S): Kyushu Electric Power Co., Inc., Japan; Daiden Co., Ltd.  
SOURCE: PCT Int. Appl., 83 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005104628	A1	20051103	WO 2005-JP7551	20050420
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RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1744598	A1	20070117	EP 2005-734415	20050420
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CN 1951156	A	20070418	CN 2005-80011649	20050420
CN 100512586	C	20090708		

KR 2007015545	A	20070205	KR 2006-721477	20061017
US 20070290605	A1	200711220	US 2007-599334	20070628
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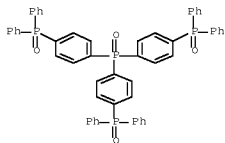
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 143:449039

AB The invention relates to an organic electroluminescent device provided with a plurality of organic compound layers sandwiched between an anode and a cathode. The organic electroluminescent device is provided with a hole transporting layer composed of an organic compound insol. in alc. solvents, and an electron transporting layer formed on the hole transporting layer by a wet method. The material of the electron transporting layer is an organic compound which contains phosphorus and soluble in alc. solvents. A method for manufacturing the organic electroluminescent element, the organic compound containing phosphorus and a method for manufacturing such compound are also provided.

IT 868520-12-1P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(organic compound containing phosphorus used in organic electroluminescent device and its preparation)

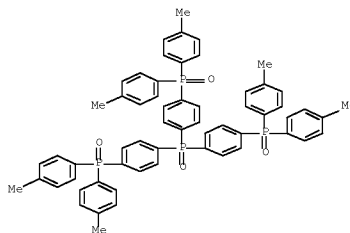
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CN Phosphine oxide, tris[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)



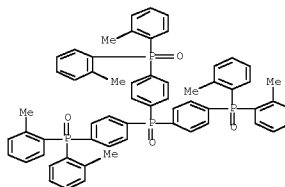
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RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(organic compound containing phosphorus used in organic electroluminescent device and its preparation)

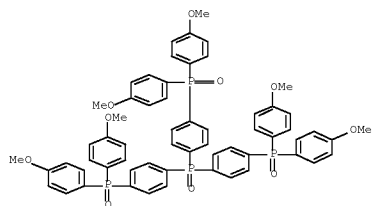
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CN Phosphine oxide, tris[4-(bis(4-methylphenyl)phosphinyl)phenyl]- (9CI) (CA INDEX NAME)



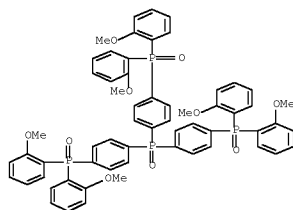
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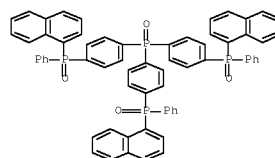
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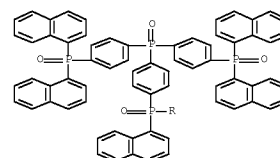
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CN Phosphine oxide, tris[4-[bis(2-methoxyphenyl)phosphinyl]phenyl]- (9CI)  
(CA INDEX NAME)



RN 868520-21-2 CAPLUS  
CN Phosphine oxide, [4-[bis[4-(1-naphthalenylphenyl)phosphinyl]phenyl]phenyl]-1-naphthalenylphenyl- (CA INDEX NAME)



RN 868520-22-3 CAPLUS  
CN Phosphine oxide, tris[4-(di-1-naphthalenylphosphinyl)phenyl]- (9CI) (CA INDEX NAME)

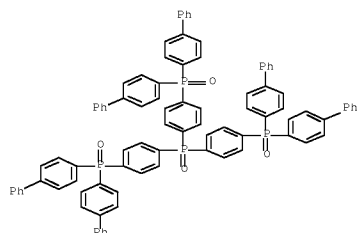


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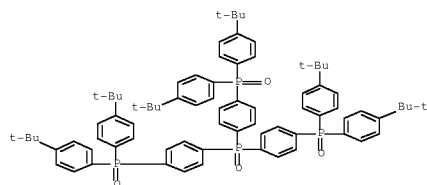


PAGE 2-A

RN 868520-24-5 CAPLUS  
CN Phosphine oxide, tris[4-[bis([1,1'-biphenyl]-4-yl)phosphinyl]phenyl]- (9CI) (CA INDEX NAME)



RN 868520-26-7 CAPLUS  
CN Phosphine oxide, tris[4-[bis[4-(1,1-dimethylethyl)phenyl]phosphinyl]phenyl]- (9CI) (CA INDEX NAME)

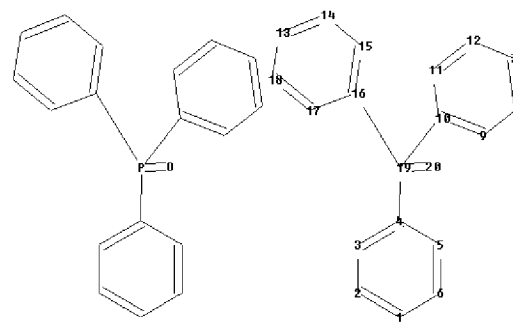


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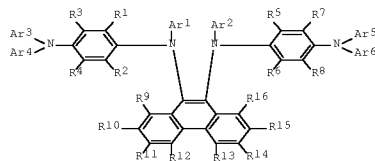
9543 ANSWERS

L8 9543 SEA SSS FUL L7  
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L9 7517 L8  
=> 19 and (electroluminescence or electrolulminescent or (light emitting) or OLED)  
27061 ELECTROLUMINESCENCE  
30 ELECTROLUMINESCENCES  
27066 ELECTROLUMINESCENCE  
(ELECTROLUMINESCENCE OR ELECTROLUMINESCENCES)  
5 ELECTROLUMINESCENCE  
27067 ELECTROLUMINESCENCE  
(ELECTROLUMINESCENCE OR ELECTROLUMINESCENCE)  
0 ELECTROLULMINESCENT  
1359112 LIGHT  
12960 LIGHTS  
1363453 LIGHT  
(LIGHT OR LIGHTS)  
144685 EMITTING  
237 EMITTINGS  
144731 EMITTING  
(EMITTING OR EMITTINGS)  
79437 LIGHT EMITTING  
(LIGHT(W)EMITTING)  
7828 OLED  
3876 OLEDS  
9794 OLED  
(OLED OR OLEDS)  
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5543817 AY<=2005  
L11 82 L10 AND (PY<=2005 OR AY<=2005)  
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YOU HAVE REQUESTED DATA FROM 82 ANSWERS - CONTINUE? Y/(N):y

L11 ANSWER 1 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:460610 CAPLUS Full-text  
DOCUMENT NUMBER: 146:451781  
TITLE:  
Organic electroluminescence display showing  
high heat-resistance, low voltage driving, and  
extended service life  
INVENTOR(S):  
Toba, Yasumasa; Tanaka, Hiroaki; Odachi, Yoshitake;  
Suda, Yasumasa; Yagi, Tamao  
PATENT ASSIGNEE(S):  
Toyo Ink Mfg. Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 101pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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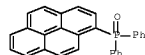
JP 2007109988 A 20070426 JP 2005-301171 20051017 <--  
PRIORITY APPLN. INFO.:  
OTHER SOURCE(S): MARPAT 146:451781 JP 2005-301171 20051017  
GI



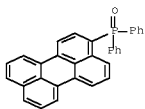
I

AB The title organic electroluminescence display includes a luminescent layer and a pos. hole injection layer, wherein the pos. hole injection layer contains a compound represented by I (R1-16 = H, monovalent aliphatic hydrocarbyl, monovalent aromatic hydrocarbyl; Ar1-6 = monovalent aromatic hydrocarbyl) showing a glass transition temperature of  $\geq 130^\circ$ . Also specified compds. for a pos. hole transport layer and an electron injection layer are included in the organic electroluminescent display.

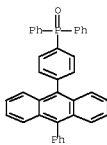
IT 110988-54-8 934704-37-7 934704-38-5  
934704-39-5 934704-40-2 934704-41-3  
934704-43-5 934704-45-7 934704-47-8  
934704-49-1 934704-53-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(in electron injection layer of organic electroluminescence  
display showing high heat-resistance, low voltage driving, and extended  
service life)  
RN 110988-94-8 CAPLUS  
CN Phosphine oxide, diphenyl-1-pyrenyl- (CA INDEX NAME)



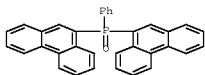
RN 934704-37-7 CAPLUS  
CN Phosphine oxide, 3-perylenyldiphenyl- (CA INDEX NAME)



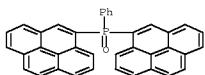
RN 934704-38-8 CAPLUS  
CN Phosphine oxide, diphenyl[4-(10-phenyl-9-anthracenyl)phenyl]- (CA INDEX NAME)



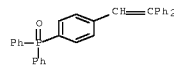
RN 934704-39-9 CAPLUS  
CN Phosphine oxide, di-9-phenanthrenylphenyl- (CA INDEX NAME)



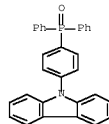
RN 934704-40-2 CAPLUS  
CN Phosphine oxide, phenyl-di-4-pyrenyl- (CA INDEX NAME)



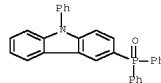
RN 934704-41-3 CAPLUS  
CN Phosphine oxide, [4-(2,2-diphenylethenyl)phenyl]diphenyl- (CA INDEX NAME)



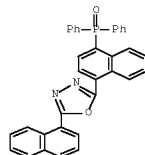
RN 934704-43-5 CAPLUS  
CN 9H-Carbazole, 9-[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)



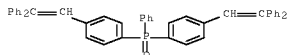
RN 934704-45-7 CAPLUS  
CN 9H-Carbazole, 3-(diphenylphosphinyl)-9-phenyl- (CA INDEX NAME)



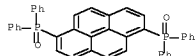
RN 934704-47-9 CAPLUS  
CN 1,3,4-Oxadiazole, 2-[4-(diphenylphosphinyl)-1-naphthalenyl]-5-(1-naphthalenyl)- (CA INDEX NAME)



RN 934704-49-1 CAPLUS  
CN Phosphine oxide, bis[4-(2,2-diphenylethenyl)phenyl]phenyl- (CA INDEX NAME)



RN 934704-51-5 CAPLUS  
CN Phosphine oxide, 1,1'-(1,6-pyrenediyl)bis[1,1-diphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L11 ANSWER 2 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:434025 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 146:451271  
TITLE: Electroluminescent devices using tetravalent organometallic compounds as hosts  
INVENTOR(S): Ren, Xiaofan; Brown, Christopher T.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 34pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070087219	A1	20070419	US 2005-254108	20051019 <--
US 7588839	B2	20090915		
WO 2007047129	A1	20070426	WO 2006-US38990	20061005

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LR, LS, LT, LU, LV, LI, MA, MD, MG, MK, MN, MW, MX, MY, NZ, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,

CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

EP 1940996 R: DE, FR, GB A1 20080709 EP 2006-825509 20061005

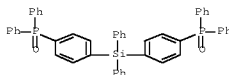
PRIORITY APPLN. INFO.: US 2005-254108 A 20051019  
WO 2006-US38990 W 20061005

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 146:451271  
AB Organic light-emitting devices comprising a cathode and an anode and with a light-emitting layer between them are described in which the light-emitting layer comprises a phosphorescent light-emitting material and a host comprising a compound of a tetravalent atom wherein the 4 groups bonded to the atom are aromatic rings, 21 of which contains an electron-withdrawing group substituent comprising 23 atoms, the compound having a triplet energy of 22.7 eV and a LUMO energy within 0.6 eV of the LUMO energy of 21 material in an adjacent layer on the cathode side of the light-emitting layer. The tetravalent atom may be selected from C, Si, Ge, Sn, Pb, Se, Ti, Zr, and Hf. In particular, devices are described which comprise selected tetra-Ph silane derivs.

IT 934466-45-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(organic electroluminescent devices using tetravalent organometallic compds. as hosts)

RN 934466-45-2 CAPLUS  
CN Phosphine oxide, 1,1'-[(diphenylsilylene)di-4,1-phenylene]bis[1,1-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 3 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:383911 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 146:411683  
TITLE: Light-emitting device with high intensity using semiconductor light emitting element and organic phosphors, illuminating device, and image display  
INVENTOR(S): Yokoo, Toshiaki; Shimizu, Kanji; Kijima, Naoto  
PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 62pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

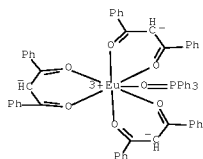
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007088300	A	20070405	JP 2005-276785	20050922 <--

PRIORITY APPLN. INFO.: JP 2005-276785 20050922

AB Disclosed is a light-emitting device comprising a light source having a peak wavelength in 350-420 nm and a phosphor capable of absorbing a part of light emitted from the light source, wherein said phosphor includes 21 organic phosphor, the light-emitting device has an emission efficiency 2220 lm/W, and an average color rendering index (Ra) is ≥80. Said organic phosphor may be β-diketone, β-diketone, aromatic carboxylic acids, and a rare earth element ion complex with a Bronsted acid ligand.

IT 262977-18-8  
RL: TEM (Technical or engineered material use); USES (Uses)  
(light-emitting device using semiconductor light emitting element and organic phosphors for display device)

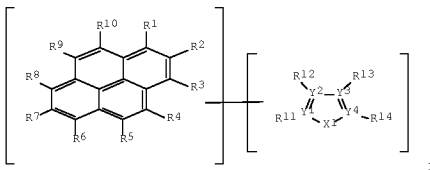
RN 161973-16-6 CAPLUS  
CN Europium, tris(1,3-diphenyl-1,3-propanedionato-  
 $\kappa$ O1, $\kappa$ O3)(triphenylphosphine oxide- $\kappa$ O)-,  
(TPS-7-1-22'2'2'2'2)- (CA INDEX NAME)



L11 ANSWER 4 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:352951 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 146:390110  
TITLE: Blue light-emitting materials and devices using pyrene compounds  
INVENTOR(S): Sugimoto, Kazunori; Murase, Seiichiro; Nagao, Kazuma  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 27pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007077185	A	20070329	JP 2005-263424	20050912 <--
JP 20050912			JP 2005-263424	20050912

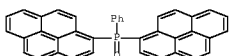
PRIORITY APPLN. INFO.: MARPAT 146:390110  
GI



AB The materials contain pyrene compds. I (R1-R14 = H, alkyl, cycloalkyl, heterocyclic group, alkenyl, cycloalkenyl, alkynyl, alkoxy, alkylthio, arylether, arylthioether, aryl, heteroaryl, halo, CN, carbonyl, CO2H, oxycarbonyl, carbamoyl, amino, phosphine oxide; R1-R14 may form condensed ring with their adjacent groups; 21 of R1-R10 and 21 of R11-R14 = single bond; X1 = O, S, NR15; Y1-Y4 = N, C; 21 of Y1-Y4 = N and 21 of Y1-Y4 = C; R15 = H, alkyl, cycloalkyl, heterocyclic group, alkenyl, cycloalkenyl, alkynyl, aryl, heteroaryl, CN, carbonyl, CO2H, oxycarbonyl, carbamoyl). The devices having light-emitting layers between anodes and cathodes and emitting light by elec. energy contain the materials. The devices show high luminescent efficiency.

IT 721969-93-3  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron-transporting materials; pyrene compound materials for blue-emitting electroluminescent devices with high luminescent efficiency)

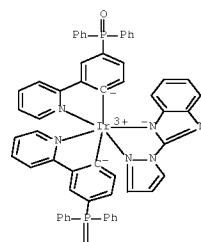
RN 721969-93-3 CAPLUS  
CN Phosphine oxide, phenyldi-1-pyrenyl- (CA INDEX NAME)



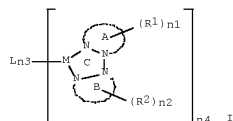
L11 ANSWER 5 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:226363 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 146:304729  
TITLE: Blue-emitting organic electroluminescent devices based on a phosphorescent transition metal complex  
INVENTOR(S): Ren, Xiaofan  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 20pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
US 20070048546 A1 20070301 US 2005-216948 20050831 <--  
US 7507486 B2 20090324  
WO 2007027440 A1 20070308 WO 2006-US32113 20060817  
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RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GN, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
EP 1920479 A1 20080514 EP 2006-789821 20060817  
R: DE, FR, GB  
PRIORITY APPLN. INFO.: US 2005-216948 A 20050831  
WO 2006-US32113 W 20060817  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 146:304729  
GI

KC] [2-(1H-pyrazol-1-yl-KN2)-1H-benzimidazolato-KN1]-  
(CA INDEX NAME)



PAGE 1-A



AB OLED devices are described which comprise a cathode, an anode, and located there between a light emitting layer containing a compound represented by formula (I), where M is a d-block transition metal of atomic number greater than 40; the coordination ring C is a triazole ring with the metal as a member of the triazole ring; A is a five- or six-membered ring; B is a five- or six-membered ring; R1 and R2 are groups other than hydrogen and may be joined together; n, and n2 are independently an integer from 0 to 6; L is a ligand; n3 is zero or an integer; and n4 is an integer of at least one. Thus, blue-emitting OLED based on a phosphorescent iridium complex was demonstrated which had a CIE chromaticity coordinate of (x,y)=(0.15, 0.25) and a maximum efficiency of 0.098 W/A.

IT 928144-80-3  
RL: PRE (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(blue-emitting organic electroluminescent devices based on phosphorescent transition metal complex)  
RN 928144-80-3 CAPLUS  
CN Iridium, bis[4-(diphenylphosphinyl)-2-(2-pyridinyl-KN)phenyl]-

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PAGE 2-A

IT 927674-91-7  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(blue-emitting organic electroluminescent devices based on phosphorescent transition metal complex)  
RN 927674-91-7 CAPLUS  
CN Pyridine, 2-[3-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 6 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:30712 CAPLUS Full-text  
DOCUMENT NUMBER: 146:151459

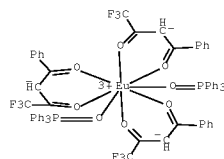
TITLE: Fluorescent complex and lighting system using the same  
INVENTOR(S): Iwanaga, Hiroki; Amano, Akio; Aiga, Fumihiko  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan  
SOURCE: U.S. Pat. Appl. Publ., 12pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
US 20070007884 A1 20070111 US 2006-471011 20060620  
JP 2007001880 A 20070111 JP 2005-180421 20050621 <--  
JP 2005-180421 A 20050621  
PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 146:151459

AB A fluorescent complex comprising a rare earth atom and a ligand having a structure comprising a plurality of coordinating groups bonded to each other in a ring form is described. An electroluminescent device using the fluorescent complex is also described. A camera comprising a flashlight comprising the fluorescent complex is also described. A cellular phone with the camera system is also described.

IT 36483-84-8 CAPLUS  
RL: TEM (Technical or engineered material use); USES (Uses)  
(guest material for fluorescent material; fluorescent complex and lighting system using the same)

RN 36483-84-8 CAPLUS  
CN Europium, tris(4,4,4-trifluoro-1-phenyl-1,3-butanedionato-KO1,KO3)bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



L11 ANSWER 7 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:1251631 CAPLUS Full-text  
DOCUMENT NUMBER: 146:35702  
TITLE: Light-emitting device containing bis-phosphine-oxide compound  
INVENTOR(S): Ren, Xiaofan; Giesen, David J.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 17pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent

LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
US 20060269784 A1 20061130 US 2005-141092 20050531 <--  
US 7419728 B2 20080902  
WO 2006130353 A2 20061207 WO 2006-US19300 20060517  
WO 2006130353 A3 20070125

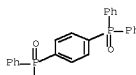
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PRIORITY APPLN. INFO.: US 2005-141092 A 20050531  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 146:35702

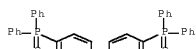
AB Organic light-emitting devices (OLEDs) are described which comprise an anode and a cathode and having in-between a light emitting layer containing an emissive material, wherein a layer between the anode and cathode contains a phosphine-oxide compound bearing two or more tri(hetero)arylphosphineoxide groups, provided these groups are selected to give a compound with a triplet state energy Et2.65 eV.

IT 3141-62-6 CAPLUS  
RL: PRE (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(light-emitting device containing bis-phosphineoxide compound)

RN 3141-62-6 CAPLUS  
CN Phosphine oxide, 1,1'-(1,4-phenylene)bis[1,1-diphenyl- (CA INDEX NAME)



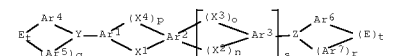
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-(1,4-biphenyl)-4,4'-diylbis[1,1-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 8 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2006:1226567 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 146:17890  
 TITLE: Multicyclic compounds for organic electronic devices and their use and the devices  
 INVENTOR(S): Vestweber, Horst; Heil, Holger; Stoessel, Philipp; Buesing, Arner; Patham, Amir; Fortte, Rocco  
 PATENT ASSIGNEE(S): Merck Patent GmbH, Germany  
 SOURCE: ECT Int. Appl., 79pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

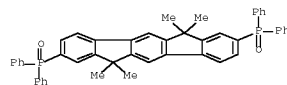
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006122630	A1	20061123	WO 2006-EP3670	20060421
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RM:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, ME, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
DE 102005023437	A1	20061130	DE 2005-102005023437	20050520 <--
AU 2006246743	A1	20061123	AU 2006-246743	20060421
CA 2608765	A1	20061123	CA 2006-2608765	20060421
EP 1883688	A1	20080206	EP 2006-724488	20060421
R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR			
JP 2008545630	T	20081218	JP 2008-511579	20060421
MX 2007014449	A	20080207	MX 2007-14449	20071116
CN 101228250	A	20080723	CN 2006-80017539	20071120
IN 2007KN04836	A	20090102	IN 2007-KN4836	20071212
KR 2008015865	A	20080220	KR 2007-729742	20071220
US 20080220285	A1	20080911	US 2008-914824	20080130
PRIORITY APPLN. INFO.:			DE 2005-102005023437A	20050520
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT			WO 2006-EP3670	W 20060421
OTHER SOURCE(S):				
GI				



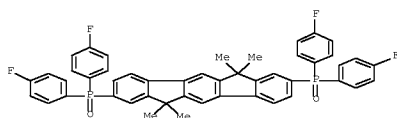
AB The title compds. are described by the general formula I (Y = N, E, P; O, PF2, P;S, As, As=O, As=S, Sb, Sb=O, Sb=S, C;O, O, S, Se, Te, Si;O, SO2, Se;O, Se=O, Te=O, or Te=O2; Ar1-3 = independently selected at each occurrence optionally substituted (hetero)aryl groups with 5-24 atoms in the aromatic rings; Ar4-7 = independently selected at each occurrence optionally substituted (hetero)aryl groups with 5-40 atoms in the aromatic rings; E = independently selected at each occurrence single bonds, N(R1), O, S, C(R1)2, or B(R1); R1 = selected substituents, including substituents which may bond together to form (poly)cyclic ring systems; X1-4 = selected bridging groups or combinations of bridging groups; n, p, and o = 0 or 1, with the restriction that only if X1 is not a C(R1)2 group for which R1 = an open chain alkyl residue can n, p, and o may be 0 simultaneously, and, when the bridge is absent it is replaced by two H atoms or other substituents; q, r = 1 when the central atom of the Y or Z groups is an element from the fifth main group of the periodic table or 0 when the central atom is selected from the fourth or sixth main groups; s = 1, 2, or 3, and t = 0 or 1, with an R1 group being attached in place of E when t = 0 and with t = 0 when q = 0). Polymers, oligomers, and dendrimers are described which have repeating units based on the compds. The use of the compds. in electronic devices (e.g., organic electroluminescent devices, organic FETs, organic integrated circuits, organic thin-film transistors, organic integrated circuits, organic solar cells, organic field quenching devices, organic light-emitting transistors, light-emitting electrochem. cells, organic photoreceptors, and organic laser diodes) is also described. The compds. may serve as hole- or electron-transporting materials, as hole-blocking materials, or as host materials in emitting devices.

IT 915406-51-8 915406-51-8 915406-52-58  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (multicyclic materials for organic electronic devices and their use and the devices)

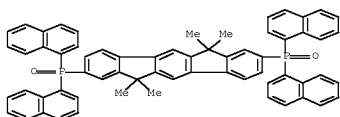
RN 915406-51-8 CAPLUS  
 CN Phosphine oxide, 1,1'-(6,12-dihydro-6,6,12,12-tetramethylindeno[1,2-b]fluorene-2,8-diyl)bis[1,1-diphenyl]- (CA INDEX NAME)



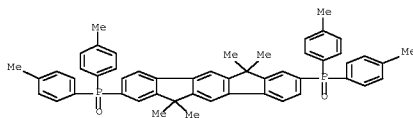
RN 915406-81-4 CAPLUS  
 CN Phosphine oxide, 1,1'-(6,12-dihydro-6,6,12,12-tetramethylindeno[1,2-b]fluorene-2,8-diyl)bis[1,1-bis(4-fluorophenyl)]- (CA INDEX NAME)



RN 915406-82-5 CAPLUS  
 CN Phosphine oxide, 1,1'-(6,12-dihydro-6,6,12,12-tetramethylindeno[1,2-b]fluorene-2,8-diyl)bis[1,1-di-1-naphthalenyl]- (CA INDEX NAME)



IT 915406-91-3 915406-98-4  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (multicyclic materials for organic electronic devices and their use and the devices)  
 RN 915406-91-3 CAPLUS  
 CN Phosphine oxide, 1,1'-(6,12-dihydro-6,6,12,12-tetramethylindeno[1,2-b]fluorene-2,8-diyl)bis[1,1-bis(4-methylphenyl)]- (CA INDEX NAME)



RN 915406-49-4 CAPLUS  
 CN Phosphine oxide, 1,1'-(6,12-dihydro-6,6,12,12-tetramethylindeno[1,2-b]fluorene-3,8-diyl)bis[1-phenyl-1-(9,9'-spiro[9H-fluoren]-2-yl)]- (CA INDEX NAME)



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)  
 REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 9 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2006:1067711 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 145:429061  
 TITLE: Electroluminescent devices using Group VIII element complexes with dianionic tridentate cyclometallating ligands and the complexes  
 INVENTOR(S): Huo, Shouquan  
 PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
 SOURCE: U.S. Pat. Appl. Publ., 36pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060228579	A1	20061012	US 2005-102380	20050408 <--
US 7535556	B2	20090630		
PRIORITY APPLN. INFO.:			US 2005-102380	20050408
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
OTHER SOURCE(S):			MARPAT 145:429061	

AB Electroluminescent devices with light-emitting layers containing a light-emitting material that contains an organometallic complex are described in which the complex includes a Group VIII element coordinated with a dianionic tridentate cyclometallating ligand bonded through a carbon and two heteroatoms to form a five or six-membered metallocycle in which each bonding atom can also be a part of a sep. cyclic or acyclic structure. The organometallic compds., including binuclear compds., are also described.

IT 791-28-60, compds. with complexed Group VIII elements  
 RL: DEV (Device component use); USES (Uses)  
 (electroluminescent devices using Group VIII element complexes with dianionic tridentate cyclometallating ligands and complexes)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)





REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 10 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:1012402 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 145:386049  
TITLE: Lighting device, image pickup apparatus and portable terminal unit  
INVENTOR(S): Iwanaga, Hiroki; Amano, Akio; Shimomura, Kenji; Otsuka, Kazuaki  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan  
SOURCE: U.S. Pat. Appl. Publ., 15 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060214578	A1	20060928	US 2006-348412	20060207
US 7611780	B2	20091103		
JP 2006278490	A	20061012	JP 2005-92289	20050328 <--
JP 4309864	B2	20090805		

PRIORITY APPLN. INFO.: JP 2005-92289 A 20050328

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 145:386049

AB A lighting device is described comprising a supporting member, a light emitting element disposed on the supporting member, and emitting light from an upper and side surfaces thereof, a first fluorescent layer containing an organic phosphor and disposed on the supporting member, and a second fluorescent layer containing only an inorg. phosphor and disposed on the supporting member, wherein the second fluorescent layer is disposed to cover the upper and side surfaces of the light emitting element, and the first fluorescent layer is disposed on at least side surface of the light emitting element with the second fluorescent layer being interposed between the light emitting element and the first fluorescent layer. An image pickup device comprising the lighting device is also described. A portable terminal unit comprising the image pickup element is also described.

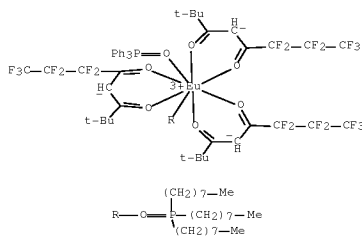
IT 863671-21-0

RL: DEV (Device component use); USES (Uses)

(lighting device, image pickup apparatus using phosphor layers)

RN 863671-21-0 CAPLUS

CN Europium, tris(6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5-octanedionato-kO3,kO5)(trioctylphosphine oxide-kO)(triphenylphosphine oxide-kO)- (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 11 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:884879 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 145:302452

TITLE: Material for light-emitting element and light-emitting element  
INVENTOR(S): Sugimoto, Kazunori; Murase, Seichiro; Kitazawa, Daisuke; Nagao, Kazumasa; Ogawa, Takafumi; Tominaga, Tsuyoshi

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: ECT Int. Appl., 77pp.

CODEN: FTXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

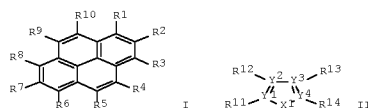
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006090772	A1	20060831	WO 2006-JP303254	20060223
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, T2, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2006265515	A	20061005	JP 2005-180464	20050621 <--
EP 1852486	A1	20071107	EP 2006-714394	20060223
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR				
KR 2007114723	A	20071204	KR 2007-719375	20070824

US 20090066245	A1	20090312	US 2007-817143	20070824
CN 101128561	A	20080220	CN 2006-80006231	20070827
PRIORITY APPLN. INFO.:			JP 2005-50282	A 20050225
			WO 2006-JP303254	W 20060223

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 145:302452

GI



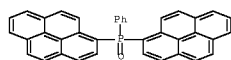
AB The invention relates to a material for a light-emitting device comprising a pyrene compound represented by a general formula I: where R1 to R10 independently represent a specific functional group, provided that at least one of R1 to R10 represents a substituent represented by a general formula II: where R11 to R14 independently represent a specific functional group, provided that any one of R11 to R14 is used for the single bonding to the pyrene backbone; X1 represents any one of the groups of -O-, -S-, -N(R15); Y1 to Y4 are independently selected from a nitrogen atom and a carbon atom, provided that at least one of Y1 to Y4 is a nitrogen atom and at least one of Y1 to Y4 is a carbon atom and, when it is a nitrogen atom, the nitrogen atom has no substituent attached, R15 represents a specific functional group. By using this material, a light-emitting device having higher light-emitting efficiency and excellent durability can be provided.

IT 721969-93-3

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(material for light-emitting device and light-emitting device)

RN 721969-93-3 CAPLUS

CN Phosphine oxide, phenyldi-1-pyrenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 12 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:817021 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 145:258748

TITLE: Fluorescent complex having  $\beta$ -diketone ligand and its use in lighting system  
INVENTOR(S): Iwanaga, Hironori; Amano, Masaki; Aiga, Fumihiko  
PATENT ASSIGNEE(S): Toshiba Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 21pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006213666	A	20060817	JP 2005-29401	20050204 <--
PRIORITY APPLN. INFO.:			JP 2005-29401	20050204

OTHER SOURCE(S): MARPAT 145:258748

AB In the complex, H atom of the methylene part between 2 carbonyl groups of  $\beta$ -diketone is substituted with a substituent having chiral center. Alternatively, the complex is Eu, Tb, Ir, and/or Er complex. The lighting system has a phosphor layer containing the complex on the luminescent surface side of a light-emitting device. The complex gives the lighting system with high luminous intensity and long life.

IT 906355-95-16

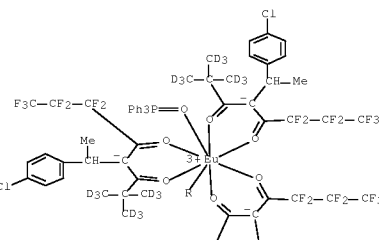
906355-95-16 906355-95-2P 906355-95-1P

906355-95-2P

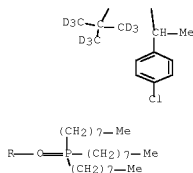
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(fluorescent complex having chiral substituent-containing  $\beta$ -diketone ligand for phosphor layer of lighting system)

RN 906355-95-1 CAPLUS

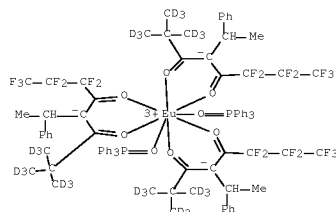
CN Europium, tris[4-[1-(4-chlorophenyl)ethyl]-6,6,7,7,8,8,8-heptafluoro-2,2-di(methyl-d3)-3,5-octanedion-1,1,1-d3-ato-kO,kO'] (trioctylphosphine oxide-kO) (triphenylphosphine oxide-kO)- (9CI) (CA INDEX NAME)



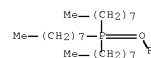
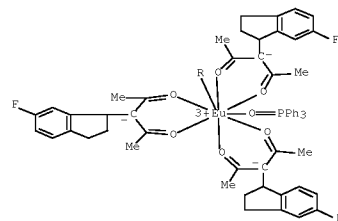
PAGE 1-A



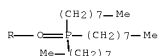
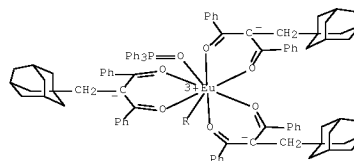
RN 906355-96-2 CAPLUS  
 CN Europium, tris[6,6,7,7,8,8,8-heptafluoro-2,2-di(methyl-d3)-4-(1-phenylethyl)-3,5-octanedion-1,1,1-d3-ato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 906356-00-1 CAPLUS  
 CN Europium, tris[3-(6-fluoro-2,3-dihydro-1H-inden-1-yl)-2,4-pentanedionato-KO,KO'](triethylphosphine oxide-KO)(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 906356-01-2 CAPLUS  
 CN Europium, tris[1,3-diphenyl-2-(tricyclo[3.3.1.1.3,7]dec-1-ylmethyl)-1,3-propanedionato-KO,KO'](triethylphosphine oxide-KO)(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 13 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2006:736437 CAPLUS Full-text  
 DOCUMENT NUMBER: 145:177056  
 TITLE: Portable flash apparatus for optical imaging sensor  
 INVENTOR(S): Iwanaga, Hironori; Amano, Masaki; Harada, Koichi; Kamakura, Takanobu; Shimomura, Kenji  
 PATENT ASSIGNEE(S): Toshiba Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp. CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006196777	A	20060727	JP 2005-8223	20050114 <--
PRIORITY APPLN. INFO.:			JP 2005-8223	20050114
OTHER SOURCE(S):			MARFAT 145:177056	

AB The invention relates to a portable flash apparatus for an optical imaging sensor, comprising a 1st flash area containing a 1st light-emitting device composed of a UV- or blue-emitting LED chip and a red-emitting phosphor, and a 2nd flash area containing a 2nd light-emitting device composed of a blue-emitting LED chip and a phosphor(s) other than the red-emitting phosphor. The portable flash apparatus provides good light intensity and color rendering for a camera apparatus

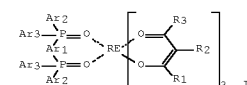
IT 863671-23-0  
 RL: DEV (Device component use); USES (Uses)  
 (portable flash apparatus for optical imaging sensor)

RN 863671-21-0 CAPLUS

CN Europium, tris[6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5-octanedionato-KO3,KO5](triethylphosphine oxide-KO)(triphenylphosphine oxide-KO)- (CA INDEX NAME)

L11 ANSWER 14 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2006:586580 CAPLUS Full-text  
 DOCUMENT NUMBER: 145:448121  
 TITLE: Preparation of rare earth complexes with arylene bis(diarylphosphinooxide) and acetylacetonate ligands  
 INVENTOR(S): Huang, Wei; Xu, Hui  
 PATENT ASSIGNEE(S): Fudan University, Peop. Rep. China  
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 17 pp. CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1687080	A	20051026	CN 2005-10025081	20050414 <--
PRIORITY APPLN. INFO.:			CN 2005-10025081	20050414
OTHER SOURCE(S):			CASREACT 145:448121; MARFAT 145:448121	

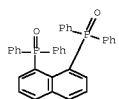


AB The title complexes with a general formula I, wherein Ar1, to Ar3 are heteroaryl, aryl, or alkylaryl, and their derivs. substituted with alkyl, haloalkyl, haloaryl, halogen, or alkylaryl; R1 to R3 are resp. alkyl, halogenated alkyl, aryl, halogenated aryl, and alkylaryl; and RE is rare earth

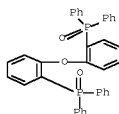
ion. The title preparation includes activating a first ligand acetylacetone derivative with NaOH in alc. solution; dissolving rare earth inorg. salts or rare earth organic compound in water or organic solvent to prepare a rare earth solution; dropwise adding the rare earth solution to the alc. solution to form a system; and adding arylene bis(diarylphosphin oxide) as the second ligand in the system to obtain the title complexes. The title complexes are used in electroluminescence device.

IT 316909-41-06 200442-23-6F  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(Preparation of rare earth complexes with arylene bis(diarylphosphin oxide) and acetylacetone ligands used as electroluminescence device)

RN 316808-41-0 CAPLUS  
CN Phosphine oxide, [8-(diphenylphosphinyl)-1-naphthalenyl]diphenyl- (CA INDEX NAME)



RN 808142-23-6 CAPLUS  
CN Phosphine oxide, (oxydi-2,1-phenylene)bis[diphenyl- (9CI) (CA INDEX NAME)

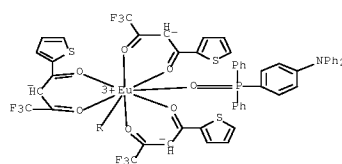


L11 ANSWER 15 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:299864 CAPLUS Full-test  
DOCUMENT NUMBER: 145:258684  
TITLE: Manufacture and application of organic rare earth coordination compound with adjustable carrier transmission capacity as electroluminescent material  
INVENTOR(S): Huang, Wei; Xu, Hui  
PATENT ASSIGNEE(S): Fudan University, Peop. Rep. China  
SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 28 pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1

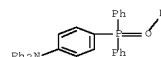
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1749352	A	20060322	CN 2005-10027980	20050721 <--
CN 100475931	C	20090408		

PRIORITY APPLN. INFO.: MARPAT 145:258684  
OTHER SOURCE(S):  
AB The title coordination compds. contain one rare earth metal coordinated by three  $\beta$ -diketone ligands and one to two organic phosphine oxide ligands. The compound can be used in electroluminescence, organic laser and solar cell.  
IT 805009-67-4p 200608-23-5a  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture and application of organic rare earth coordination compound with adjustable carrier transmission capacity as electroluminescent material)  
RN 906009-67-4 CAPLUS  
CN Europium, bis[4-(diphenylphosphinyl- $\kappa$ O)-N,N-diphenylbenzenamine]tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O, $\kappa$ O']- (9CI) (CA INDEX NAME)



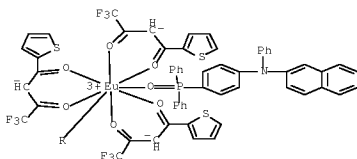
PAGE 1-A



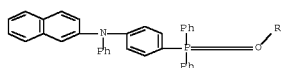
PAGE 2-A

RN 906009-68-5 CAPLUS  
CN Europium, bis[N-[4-(diphenylphosphinyl- $\kappa$ O)phenyl]-N-phenyl-2-naphthalenamine]tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O, $\kappa$ O']- (9CI) (CA INDEX NAME)

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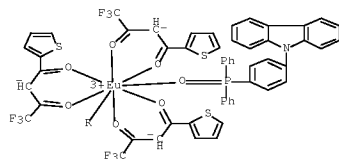


PAGE 2-A

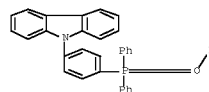


IT 906009-70-8  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(manufacture and application of organic rare earth coordination compound with adjustable carrier transmission capacity as electroluminescent material)  
RN 906009-70-9 CAPLUS  
CN Europium, bis[9-[4-(diphenylphosphinyl- $\kappa$ O)phenyl]-9H-carbazole]tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O, $\kappa$ O']- (9CI) (CA INDEX NAME)

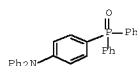
PAGE 1-A



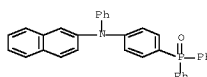
PAGE 2-A



IT 887651-42-4 937651-32-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manufacture and application of organic rare earth coordination compound with adjustable carrier transmission capacity as electroluminescent material)  
RN 887651-41-4 CAPLUS  
CN Benzenamine, 4-(diphenylphosphinyl)-N,N-diphenyl- (CA INDEX NAME)

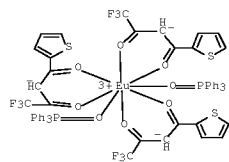


RN 887651-42-5 CAPLUS  
CN 2-Naphthalenamine, N-[4-(diphenylphosphinyl)phenyl]-N-phenyl- (CA INDEX NAME)



L11 ANSWER 16 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:237522 CAPLUS Full-test  
DOCUMENT NUMBER: 144:283050  
TITLE: Light-emitting device  
INVENTOR(S): Shimizu, Kanji; Murayama, Tetsuo  
PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

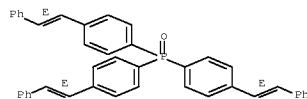
PATENT NO. KIND DATE APPLICATION NO. DATE  
JP 2006073748 A 20060316 JP 2004-254566 20040901 <--  
PRIORITY APPLN. INFO.: JP 2004-254566 20040901  
AB The invention relates to a light-emitting device comprising a 1st light-emitting body generating the light in a near UV-visible region, and a 2nd light-emitting body containing an organic fluorescent substance that is optically excitable by the 1st light-emitting body, wherein the 2nd light-emitting body covered by a sealing material via a shielding layer, so that the direct contact between the 2nd light-emitting body and the sealing material may be avoided.  
IT 12121-29-8  
RL: DEV (Device component use); USES (Uses)  
(fluorescent substance; light-emitting device)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-  
WO1,WO3]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



L11 ANSWER 17 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:13688 CAPLUS Full-text  
DOCUMENT NUMBER: 144:119361  
TITLE: Compounds for organic electronic devices  
INVENTOR(S): Stossel, Philipp; Vestweber, Horst; Heil, Holger; Breuning, Esther  
PATENT ASSIGNEE(S): Merck Patent GmbH, Germany  
SOURCE: PCT Int. Appl., 34 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
WO 2006000390 A2 20060105 WO 2005-EP6729 20050622 <--  
WO 2006000390 A3 20060526  
W: AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA,

integrated circuits, organic solar cells, organic field quenching devices, organic laser diodes, or, especially, organic electroluminescent devices.  
IT 821451-78-1  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(organic electronic devices using chalcogen and pnictogen-bridged and -centered compds.)  
RN 661451-78-1 CAPLUS  
CN Phosphine oxide, tris[4-[(1E)-2-phenylethenyl]phenyl]- (CA INDEX NAME)  
Double bond geometry as shown.

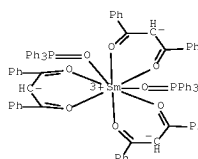


L11 ANSWER 18 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1284947 CAPLUS Full-text  
DOCUMENT NUMBER: 144:400155  
TITLE: Luminescent properties of Sm(DPM)3 doped PMMA with secondary ligands  
AUTHOR(S): Dong, Ning; Chen, Biao; Guo, Hai; Yin, Min; Zhang, Wei-ping; Zhang, Qi-jin  
CORPORATE SOURCE: Structure Research Laboratory, University of Science and Technology of China, Peop. Rep. China  
SOURCE: Faguang Xuebao (2005), 26(5), 659-663  
CODEN: FAXUEN; ISSN: 1000-7032  
Kexue Chubanshe  
PUBLISHER: Journal  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese  
AB Rare earth organic chelate materials attract wide interest for its particular intense emission of rare earth ions compared to the rare earth doped inorg. materials. This is achieved by the organic ligands for its strong absorption in UV region and efficient energy transfer to the rare earth ion centers. It leads to lots of applications in the fields of electroluminescence, waveguide devices and fiber amplifiers. During the studies, secondary ligand is found to be of much importance. It can substitute water chelate to reduce the non-radiative relaxation, take part in the energy transfer process, and absorb photons to affect the absorption limits. The synthesis and luminescent properties of Sm(DPM)3 doped PMMA (polymethyl methacrylate) with three different secondary ligands; phen, TOPO, TPPO (DPM; dibenzoyl methane, Phen; 1,10-phenanthroline, TOPO; trioctylphosphine oxide, TPPO; triphenylphosphine oxide) are reported. The emission and excitation spectra of samples with and without secondary ligand are recorded. The emission peaks are assigned to different transitions of Sm3+, as a weak broad band also appears due to direct emission from ligands. The excitation bands of different secondary ligands show obvious shifts compared to that of pure Sm(DPM)3-doped poly(Me methacrylate) (PMMA), the excitation efficiency also varies. Decay curves of the Sm3+ emission of all these samples are measured, and lifetimes of the level 4G5/2 are obtained. The spectroscopic differences among the samples are discussed. The results show that the best secondary ligand here is TPPO.

NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, A2, BY, KG, KZ, MD, RU, TJ, TM  
DE 102004031000 A1 20060112 DE 2004-102004031000 20040626 <--  
EP 1761547 A2 20070314 EP 2005-756091 20050622 <--  
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR  
JP 2008504382 T 20080214 JP 2007-517191 20050622 <--  
WO 2006058737 A1 20060608 WO 2005-EP12807 20051201 <--  
W: AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, A2, BY, KG, KZ, MD, RU, TJ, TM  
EP 1817272 A1 20070815 EP 2005-813485 20051201 <--  
EP 1817272 B1 20100203  
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR  
JP 2008521857 T 20080626 JP 2007-543770 20051201 <--  
AT 457022 T 20100215 AT 2005-813485 20051201 <--  
US 20070185303 A1 20070809 US 2006-630493 20061222  
US 20080125609 A1 20080529 US 2007-720574 20070531  
PRIORITY APPLN. INFO.: DE 2004-102004031000A 20040626  
EP 2004-28407 A 20041201  
EP 2005-1891 A 20050131  
EP 2005-9644 A 20050503  
WO 2005-EP6729 W 20050622  
WO 2005-EP12807 W 20051201

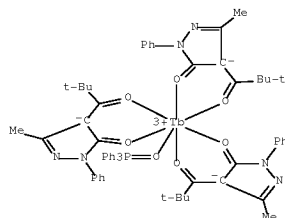
OTHER SOURCE(S): MARPAT 144:119361  
AB The use is described in organic electronic devices of compds. described by the general formula Xz:Y-(Ar1n-(C(R1):C(Ar2)m(R2))q)p (Y = N, P, As, Sb, Bi, O, S, Se, or Te, with the restrictions that, if Y = O, X = a free electron pair and, if Y = S, Se, or Te, X is either a free electron pair or O; X = independently selected at each occurrence from O, S, Se, Te, or a free electron pair; Ar1 and Ar2 = at each occurrence independently selected optionally substituted bivalent C2-24 heteroaryl or C6-24 aryl groups; R1 and R2 = at each occurrence independently selected from H, CH, F, optionally substituted C1-40 straight or C3-40 branched or cyclic alkyl groups, optionally substituted C6-40 aromatic or C2-40 heteroarom. systems, or optionally substituted C6-40 aryloxy or C2-40 heteroaryloxy groups, or R1 and/or R2 may form a cyclic system with Ar1 or Ar2; n = independently at each occurrence 0-5; m = independently at each occurrence 0-5; q = independently at each occurrence 0-5 with the restriction that at least on occurrence of q is not 0; p = 3 when Y is a pnictogen and 2 when Y is a chalcogen; and z = 1 when Y is a pnictogen and 2 when Y is a chalcogen). Mixts. including the compds. and polymers incorporating the compds. as repeating units are also described. The devices employing the compds. may include organic field-effect transistors, organic thin-film transistors, organic light-emitting transistors, organic

IT 882567-08-0  
RL: CFS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
(dopant; secondary ligands effect on luminescence of PMMA doped with)  
RN 882567-08-0 CAPLUS  
CN Samarium, tris[1,3-diphenyl-1,3-propanedionato-  
WO,KO]bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



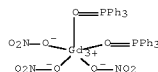
L11 ANSWER 19 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1194347 CAPLUS Full-text  
DOCUMENT NUMBER: 144:242965  
TITLE: Organic light-emitting diodes based on organic electrophosphorescent material doped rare-earth complex  
AUTHOR(S): Gao, Jia; Ding, Jun-qiao; You, Han; Fang, Jun-feng; Ma, Dong-ge; Wang, Li-xiang; Jing, Xia-bin; Wang, Fo-song  
CORPORATE SOURCE: State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China  
SOURCE: Jilin Daxue Xuebao, Lixueban (2005), 43(5), 638-641  
CODEN: JDXLAW; ISSN: 1671-5489  
PUBLISHER: Jilin Daxue Chubanshe  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese  
AB This paper covers organic electrophosphorescent light-emitting diodes with organic phosphorescent compound (PFQ)2Ir(acac) as dopant and rare-earth complex Tb(eb-FMIP)3 (TPPO) as host. The devices were fabricated via vacuum evaporation with indium-tin-oxide as an anode and LiF/Al as a cathode. A red light with a peak at 615 nm was observed, the characteristic emission from the triplet state of (PFQ)2Ir(acac). A maximum emissive efficiency of 3.14 cd/A was obtained by optimizing device structure and the dopant content. The exptl. results demonstrate that rare-earth complexes with wider band gap ligands may be promising materials as host in highly stable organic electrophosphorescent light-emitting diodes.  
IT 882567-08-0  
RL: DEV (Device component use); USES (Uses)  
(organic light-emitting diodes based on organic electrophosphorescent material doped rare-earth complex)

RN 333724-64-4 CAPLUS  
CN Terbium, tris[4-[2,2-dimethyl-1-(oxo-ko)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-ko3](triphenylphosphine oxide-ko)-  
(CA INDEX NAME)

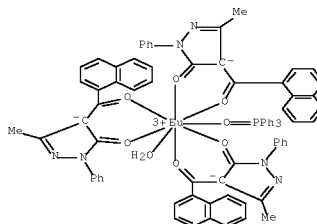


L11 ANSWER 20 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1166434 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 144:96896  
TITLE: Tuning the Triplet Energy Levels of Pyrazolone Ligands to Match the 5D0 Level of Europium(III)  
AUTHOR(S): Shi, Mei; Li, Fuyou; Yi, Tao; Zhang, Dengqing; Hu, Huaiming; Huang, Chunhui  
CORPORATE SOURCE: Laboratory of Advanced Materials, Fudan University, Shanghai, 200433, Peop. Rep. China  
SOURCE: Inorganic Chemistry (2005), 44(24), 8929-8936  
CODEN: INOCAJ; ISSN: 0020-1669  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Three pyrazolone-based ligands, 1-phenyl-3-methyl-4-(1-naphthoyl)-5-pyrazolone (HL1), 1-phenyl-3-methyl-4-(4-dimethylaminobenzoyl)-5-pyrazolone (HL2), and 1-phenyl-3-methyl-4-(4-cyanobenzoyl)-5-pyrazolone (HL3), were synthesized by introducing electron-poor or electron-rich aryl substituents at the 4-position of the pyrazolone ring. Their corresponding Eu complexes Eu(LX)3(H2O)2 and Eu(LX)3(TPPO)(H2O) (X = 1-3) were characterized by photophys. studies. The characteristic Eu(III) emission of these complexes with at most 9.2 + 10-3 of fluorescent quantum yield was observed at room temperature. The modification of ligands tunes the triplet energy levels of three pyrazolone-based ligands to match the 5D0 energy level of Eu3+ properly and improves the energy transfer efficiency from antenna to Eu3+, therefore enhancing the Eu(III) emission intensity. The highest energy transfer efficiency and probability of lanthanide emission of Eu(L1)3(H2O)2 are 35.1% and 2.6%, resp., which opens up broad prospects for improving luminescent properties of Eu(III) complexes by the modification of ligands. Also, the electroluminescent properties of Eu(L1)3(TPPO)(H2O) were also studied.  
IT 756500-52-46  
RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant);

FREP (Preparation); RACT (Reactant or reagent)  
(comparison with; tuning the triplet energy levels of pyrazolone ligands to match the 5D0 level of europium(III))  
RN 756500-52-4 CAPLUS  
CN Gadolinium, tris(nitrato-ko)bis(triphenylphosphine oxide-ko)-  
(CA INDEX NAME)

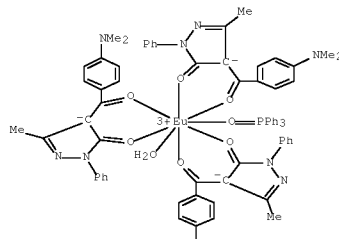


IT 872505-72-1F 872505-73-2F 872505-74-1F  
RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant);  
FREP (Preparation); RACT (Reactant or reagent)  
(tuning the triplet energy levels of pyrazolone ligands to match the 5D0 level of europium(III))  
RN 872505-72-1 CAPLUS  
CN Europium, aquatris[2,4-dihydro-5-methyl-4-(1-naphthalenylcarbonyl-ko)-2-phenyl-3H-pyrazol-3-onato-ko3](triphenylphosphine oxide-ko)-, (TFS-8-313'2'43'22'')- (CA INDEX NAME)



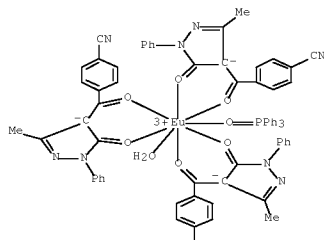
RN 872505-73-2 CAPLUS  
CN Europium, aquatris[4-[4-(dimethylamino)benzoyl-ko]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-ko3](triphenylphosphine oxide-ko)-, (TFS-8-313'2'43'22'')- (CA INDEX NAME)

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RN 872505-74-3 CAPLUS  
CN Europium, aquatris[4-[[4,5-dihydro-3-methyl-5-(oxo-ko)-1-phenyl-1H-pyrazol-4-yl]carbonyl-ko]benzonitrilato](triphenylphosphine oxide-ko)-, (TFS-8-313'2'43'22'')- (CA INDEX NAME)



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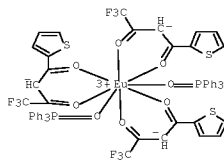
OS.CITING REF COUNT: 55 THERE ARE 55 CAPLUS RECORDS THAT CITE THIS RECORD (56 CITINGS)  
REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 21 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1020832 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 143:315109  
TITLE: Light-emitting substance containing phosphor complex and polysiloxane and light-emitting devices using it  
INVENTOR(S): Barachi, Sabramaniam; Ohara, Hidehiko; Kijima, Naoto  
PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 27 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005255912	A	20050922	JP 2004-71404	20040312 <--
PRIORITY APPLN. INFO.:			JP 2004-71404	20040312

AB The claimed substance contains a phosphor complex and a polysiloxane, and at least part of the polysiloxane has a cage structure. The light-emitting device has a 1st light-emitting part for irradiating UV (350-415 nm) to visible light to a 2nd light-emitting part which generates visible light having wavelength longer than the irradiated light, where the 2nd light-emitting part contains the claimed substance as a wavelength conversion material. Lighting devices and display devices using the light-emitting devices are also claimed. The claimed substance has high luminescence intensity, color rendition, and wide color reproduction range.

IT 12121-29-8F  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); FREP (Preparation); USES (Uses)  
(light-emitting substance containing phosphor complex and cage polysiloxane for high luminescence intensity and color rendition)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-ko1,ko3]bis(triphenylphosphine oxide-ko)- (CA INDEX NAME)



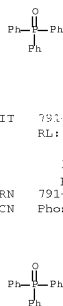
L11 ANSWER 22 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:985164 CAPLUS Full-text  
DOCUMENT NUMBER: 143:275252  
TITLE: Red emission organic phosphor with broad excitation band based on lanthanide complexes with  $\beta$ -diketone and organic phosphine oxide ligands  
INVENTOR(S): Zhang, Xiao; Zeng, Xianting  
PATENT ASSIGNEE(S): Agency for Science, Technology and Research, Singapore  
SOURCE: U.S. Pat. Appl. Publ., 12 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050194885	A1	20050908	US 2005-49274	20050202 <--
SG 144706	A1	20080828	SG 2004-569	20040204 <--
SG 2004-569	A	20040204		

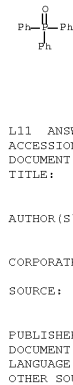
PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 143:275252

AB Red-emitting phosphors of the general formula  $\text{Ln}(\text{A})_3\text{-x}(\text{B})_{2\text{x}+2}$  are synthesized and characterized, where Ln is a lanthanide series element, A is a  $\beta$ -diketone and B is an organic phosphine oxide  $\text{R}_3\text{PO}$ , in which R = alkyl, alkylene, aryl, Ph and their derivs.; and where  $-0.5 < x < 0$  and  $0 < x < 1$ . The phosphors are prepared in a single step process where a lanthanide ion solution is added to a  $\beta$ -diketone and organic phosphine oxide mixture light-emitting devices employing the phosphors are also discussed.

II 791-28-802, complex with europium and thenyltrifluoroacetone  
RL: FRP (Physical, engineering or chemical process); FRP (Properties); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses) (red emission organic phosphor with broad excitation band based on lanthanide complexes with  $\beta$ -diketone and phosphine oxide ligands)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



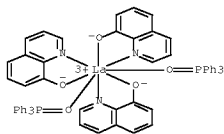
II 791-28-8, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(red emission organic phosphor with broad excitation band based on lanthanide complexes with  $\beta$ -diketone and phosphine oxide ligands prepared using)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



L11 ANSWER 23 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:981559 CAPLUS Full-text  
DOCUMENT NUMBER: 143:431498  
TITLE: Efficient synthetic route to anhydrous mononuclear tris(8-quinolinolato)lanthanoid complexes for organic light-emitting devices  
AUTHOR(S): Katkova, Marina A.; Kurskii, Yuri A.; Fukin, Georgy K.; Averyushkin, Anatoly S.; Artamonov, Alexei N.; Vitukhnovsky, Alexei G.; Bochkarev, Mikhail N.  
CORPORATE SOURCE: G.A. Razuvaev Institute of Organometallic Chemistry of RAS, Nizhny Novgorod, 603950, Russia  
SOURCE: Inorganica Chimica Acta (2005), 358(13), 3625-3632  
CODEN: ICHAA3; ISSN: 0020-1693  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 143:431498  
AB A new lanthanoid 8-quinolinolato type structure was found for lanthanum complex  $\text{La}_3(\text{qMe})_9(\text{H})(\text{NO}_3)$  (1) formed in the reaction of  $\text{La}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$  with 2-methyl-8-hydroxyquinoline (HqMe) and aqueous ammonia in methanol. The mol. of 1 contains three La atoms connected by six bridging quinolinolate ligands, two terminated  $\eta^2$ -coordinated qMe ligands, one terminated  $\eta^1$ -coordinated qMe ligand and one terminated  $\text{NO}_3$  group. The geometry and  $^1\text{H}$  NMR spectrum of the complex suggest that it is bearing a -1 charge balanced by a proton, which was localized objectively. The arrangement of the compound in crystalline state and in pyridine solution is discussed. Syntheses of water- and acid residual-free mononuclear lanthanoid quinolinolates  $\text{La}(\text{qMe})_3(\text{py})_2$  (2) and  $\text{Lnq}_3(\text{py})_2$  ( $\text{Ln} = \text{Y}$  (3),  $\text{La}$  (4),  $\text{Sm}$  (5),  $\text{Eu}$  (6),  $\text{Tb}$  (7),  $\text{Er}$  (8),  $\text{Tm}$  (9);  $\text{q} = 8$ -quinolinolate,  $\text{py} = \text{pyridine}$ ) by the reaction of appropriate amido complexes  $\text{Ln}(\text{N}(\text{Me})_2)_3$  with 3 equiv of 2-methyl-8-hydroxyquinoline or 8-hydroxyquinoline in pyridine solution is also described. The complex  $\text{Laq}_3(\text{Ph}_3\text{PO})_2$  (10) was prepared by treatment of 4 with triphenylphosphine oxide

in pyridine solution Lanthanum complex 2 revealed a photoluminescence intensity approx. 3 + 103 times higher than that of the compound 1 prepared by the traditional way in water-alc. medium. These data give a ground to consider the  $\text{Lnq}_3(\text{py})_2$  complexes as promising material for design of light-emitting devices.

II 791-28-802, complex with europium and thenyltrifluoroacetone  
RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and luminescence of rare earth quinolinolato complexes for potential use in organic light-emitting devices)  
RN 868363-21-7 CAPLUS  
CN Lanthanum, tris(8-quinolinolato- $\text{KN1}$ ,  $\text{NO8}$ )bis(triphenylphosphine oxide- $\text{KO}$ )- (CA INDEX NAME)



II 791-28-6, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of lanthanum quinolinolato triphenylphosphine oxide complex)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)

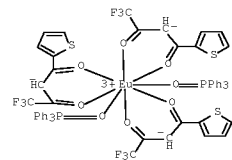


OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)  
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

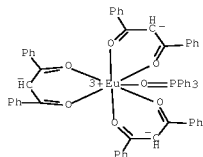
L11 ANSWER 24 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:823794 CAPLUS Full-text  
DOCUMENT NUMBER: 143:238350  
TITLE: Light-emitting device and lighting device using it, image display unit  
INVENTOR(S): Yabe, Akiko; Murayama, Tetsuo  
PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan  
SOURCE: PCT Int. Appl., 46 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

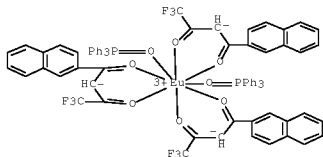
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005075598	A1	20050818	WO 2005-JP2092	20050204 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, BG, CZ, DE, DK, DR, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2005252250	A	20050915	JP 2005-29595	20050204 <--
EP 1717290	A1	20061102	EP 2005-710144	20050204 <--
R: DE				
CN 1934214	A	20070321	CN 2005-80009259	20050204 <--
US 20070132366	A1	20070614	US 2007-588292	20070101
PRIORITY APPLN. INFO.:				
JP 2004-30173	A	20040206		
WO 2005-JP2092	W	20050204		
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
AB The invention relates to a light-emitting device (LED) having a high, stable light emission intensity, i.e., a light-emitting device in which, when an LED or LD having an emission peak of 380 nm-410 nm is used as the exciting light source of a light-emitting device, the light emission intensity of a red phosphor does not change significantly and its luminance as well as its balance when mixed with blue and green phosphors is kept satisfactorily despite some deviation in its emission wavelength. The light-emitting device is characterized by comprising a phosphor having $\text{Eu}^{3+}$ as an emission center ion, a min. emission intensity, within an excitation wavelength range of 380 nm-410 nm in an excitation spectrum, of at least 65% of a maximum emission intensity, and an emission efficiency at 400 nm of at least 20%, and a semiconductor light emitting element that emits light in a near-UV ray through visible light region.				
II 12121-29-80 161873-16-8P 383191-23-98				
RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (light-emitting device and lighting device using it, image display unit)				
RN 12121-29-8 CAPLUS				
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\text{KO1}$ , $\text{KO3}$ ]bis(triphenylphosphine oxide- $\text{KO}$ )- (CA INDEX NAME)				



RN 161973-16-6 CAPLUS  
CN Europium, tris(1,3-diphenyl-1,3-propanedionato-  
KO1,KO3)(triphenylphosphine oxide-KO)-,  
(TPS-7-1-22'2'2''2''2)- (CA INDEX NAME)



RN 383191-23-9 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-naphthalenyl)-1,3-butanedionato-  
KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA  
INDEX NAME)



IT 791-28-6, Triphenylphosphineoxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(Light-emitting device and lighting device using  
it, image display unit)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

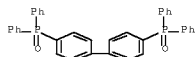
L11 ANSWER 25 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:732727 CAPLUS Full-text  
DOCUMENT NUMBER: 143:219214  
TITLE: Organic materials with tunable electric and  
electroluminescent properties  
INVENTOR(S): Sapochak, Linda Susan; Burrows, Paul Edward;  
Padmaperuma, Asanga Bimalchandra; Desilva,  
Murukkuwadura Aruni; Bennett, Byron Lee  
PATENT ASSIGNEE(S): Battelle Memorial Institute, USA; University of Nevada  
Las Vegas  
SOURCE: PCT Int. Appl., 38 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005073340	A1	20050811	WO 2005-US1779	20050121 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 20070001151	A1	20070104	US 2005-35379	20050112 <--
EP 1706470	A1	20061004	EP 2005-722477	20050121 <--
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS			
CN 1981015	A	20070613	CN 2005-80009589	20050121 <--
JP 2007524672	T	20070830	JP 2006-551256	20050121 <--
KR 2007004641	A	20070109	KR 2006-716925	20060823
PRIORITY APPLN. INFO.:			US 2004-538773P	P 20040123
			US 2005-35379	A 20050112
			WO 2005-US1779	W 20050121

#### ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Materials are described which comprise 2l phosphine oxide moieties, each of which is further bonded by single bonds to 22 outer groups, the material configured as part of a circuit. The circuit may be a photodetector, solar cell, thin-film transistor, or bipolar transistor, or a circuit incorporated in an array to form an information display. Organic light-emitting devices having an anode layer, a cathode layer, and 2l organic layer interposed between the anode and cathode layer are also described in which 2l of the organic layers comprises a material having 22 phosphine oxide moieties joined by a bridging group, wherein each of the phosphine moieties is further bonded by single bonds to 2 outer groups. By selecting appropriate bridging and outer groups, the elec. and electroluminescent characteristics of the materials can be adjusted. The phosphine oxide moiety restricts electron conjugation between the bridging and outer groups, isolating the bridging and outer groups from each other, and allowing the photophys. properties of the bridging and outer groups to be maintained in the mol. The lowest energy component (bridging group or particular outer group) thus defines the triplet state, HOMO and lowest unoccupied mol. energies for the entire mol.

IT 4129-45-76  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(organic materials with phosphine oxide moieties and devices using them)  
RN 4129-45-7 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-biphenyl]-4,4'-diylbis[1,1-diphenyl- (CA INDEX NAME)

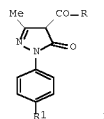


OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)  
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 26 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:509035 CAPLUS Full-text  
DOCUMENT NUMBER: 143:256767  
TITLE: Terbium compound electroluminescent material and device  
INVENTOR(S): Huang, Chunhui; Xin, Hao; Li, Fuyou  
PATENT ASSIGNEE(S): Beijing Univ., Peop. Rep. China  
SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, No pp.  
given  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

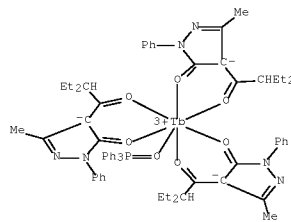
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1534024	A	20041006	CN 2003-107715	20030402 <--
PRIORITY APPLN. INFO.:			CN 2003-107715	20030402
OTHER SOURCE(S):			MARPAT 143:256767	

#### GI

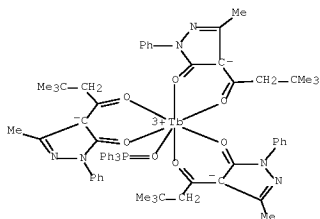


AB An electroluminescent material Tb(L1)3(L2)n is disclosed, where Tb is three-valence pos. ion of Tb is the organic chelating neg. ion of pyrazolinone and L2 is a neutral ligand. The device prepared from it is also disclosed. The compound L1 [I, R = C24 straight or branched alkyl; R1 = H, C1-5 straight or branched alkyl] is claimed. Their advantages are high brightness and high efficiency.

IT 560106-43-6 CAPLUS  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(terbium compound electroluminescent material and device)  
RN 560106-43-6 CAPLUS  
CN Terbium, tris[4-[2-ethyl-1-(oxo-KO)butyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)-, (TPS-7-3-12'3'2'3''2)- (CA INDEX NAME)



RN 756500-50-2 CAPLUS  
CN Terbium, tris[4-[3,3-dimethyl-1-(oxo-KO)butyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)-, (PB-7-13'1'-22'3'2'3'')- (CA INDEX NAME)



II 791-28-6  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (terbium compound electroluminescent material and device)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)

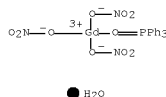


L11 ANSWER 27 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:498543 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 144:137770  
 TITLE: Heteroleptic complexes of terbium(III) phenylanthranilate (Tb(PA)3) with triphenylphosphine oxide (TPPO): A Tb(PA)3(TPPO)2-based electroluminescent device  
 AUTHOR(S): Eliseeva, S. V.; Mirzov, O. V.; Lepnev, L. S.; Ivanov, R. A.; Nichiporuk, R. V.; Ivanov, S. A.; Westling, M.; Kuz'mina, N. F.  
 CORPORATE SOURCE: Khim. Fak., Mosk. Gos. Univ. im. M. V. Lomonosova, Moscow, Russia  
 SOURCE: Zhurnal Neorganicheskoi Khimii (2005), 50(4), 596-603  
 CODEN: ZHOKAQ; ISSN: 0044-457X  
 PUBLISHER: MAIK Nauka/Interperiodica Publishing  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 OTHER SOURCE(S): CASREACT 144:137770  
 AB Tb(PA)3(TPPO)2 was prepared by coordination of TPPO with Tb(PA)3.2H2O; the energy level disposition was as follows: 3TPPO > 3PA > Tb3+(5D4). Relative photoluminescence intensity of heteroligand complexes varied as follows: Tb(PA)3 (reference = 1), Tb(PA)3.2H2O (0.77), Tb(PA)3(TPPO) (1.17), Tb(PA)3(TPPO)2 (1.16), Tb(PA)3(Phen) (0.22). An electroluminescent device

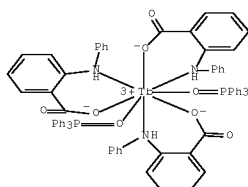
ITO/PEDOT:PSS/EVC/Tb(PA)3(TPPO)2/Al exhibited photo- and electroluminescence bands corresponding to Tb3+ only: 5D4 → 7F6, 7F5, 7F4, and 7F3 (490, 545, 585, and 620 nm, resp.), indicating that the central rare earth ion is solely responsible for luminescence.  
 II 791-28-6, Triphenylphosphine oxide  
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
 (coordination and determination of triplet level; preparation of heteroleptic complexes of terbium(III) N-phenylanthranilate with triphenylphosphine oxide and electroluminescent device based thereon)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)



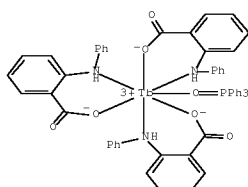
II 873201-72-0  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation for determination of ligand triplet level; preparation of heteroleptic complexes of terbium(III) N-phenylanthranilate with triphenylphosphine oxide and electroluminescent device based thereon)  
 RN 873201-72-0 CAPLUS  
 CN Gadolinium, tris(nitrato-KO)(triphenylphosphine oxide-KO)-, monohydrate, (T-4)- (9CI) (CA INDEX NAME)



II 873201-71-9  
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (preparation of heteroleptic complexes of terbium(III) N-phenylanthranilate with triphenylphosphine oxide and electroluminescent device based thereon)  
 RN 873201-71-9 CAPLUS  
 CN Terbium, tris[2-(phenylamino-KN)benzoato-KO]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



II 873201-70-8  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of heteroleptic complexes of terbium(III) N-phenylanthranilate with triphenylphosphine oxide and electroluminescent device based thereon)  
 RN 873201-70-8 CAPLUS  
 CN Terbium, tris[2-(phenylamino-KN)benzoato-KO]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L11 ANSWER 28 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:414618 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 143:202736  
 TITLE: Red/blue mixed light-emitting polymer/multinuclear rare earth organosilicon light converting film prepared at room temperature  
 INVENTOR(S): Zhou, Ninglin; Huang, Xiaohua; Lu, Tianhong; Shen, Jian  
 PATENT ASSIGNEE(S): Nanjing Normal University, Peop. Rep. China  
 SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 12 pp.  
 CODEN: CNXXEV

DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1431254	A	20030723	CN 2003-112783	20030128
CN 1220721	C	20050928		

PRIORITY APPLN. INFO.: CN 2003-112783 20030128  
 AB The rare earth/organosilicon composite light converting film is prepared from polymer 100, clay [its cationic exchange capacity of 70-120 meq (100 g)-1] 0-30, rare earth/organosilicon composite light converting agent 0.01-10, dispersing medium 100-400, crosslinking agent 0-10, and accelerator 0-1.0 part. The polymer is silicone rubber or the polymer or copolymer of acrylic acid, (meth)acrylic ester, and/or (meth)acrylamide. The light converting agent is a mixture of long-chain organosilicon surfactant with rare earth/alpha-thienylcarbonyl- trifluoroacetone complex (rare earth/triphenylphosphine oxide complex, or rare earth/dibasic ligand complex), and the rare earth is Eu3+ or Tb3+. The organosilicon surfactant is 3SIRIN+2R3R4X- (R, R2, and/or R3 = Me or ethyl; R1 = -CH2- or -C3H6-; and R4 = higher linear alkyl, CH2=CHCOOC2H4-, CH2=C(CH3)COOC2H4-, etc; X = Cl or Br). The process comprises dispersing the light converting agent in dispersing medium, mixing with polymer for 1-3 h then with crosslinking agent and accelerator, and molding at 20-120° for 0.2-24 h. The process may comprise mixing the light converting agent and clay in dispersing medium at 20-200° for 3-6 h under high-speed agitation, washing, drying, grinding to obtain functional organic clay, mixing with polymer for 1-6 h then with other raw material, and molding.  
 II 791-28-6, Triphenylphosphine oxide  
 RL: PRP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (red/blue mixed light-emitting polymer/multinuclear rare earth organosilicon light converting film prepared at room temperature)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)



L11 ANSWER 29 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:395412 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 142:455291  
 TITLE: Organic semiconductors incorporating triplet emitters and their uses and electronic devices employing them  
 INVENTOR(S): Heun, Susanne; Scheurich, Rene; Buesing, Arne; Falcou, Aurelie; Gerhard, Anja; Stoessel, Philipp; Vestweber, Horst  
 PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 56 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent



LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

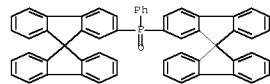
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005040302	A1	20050506	WO 2004-EP11888	20041021 <--
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RW: BW, GH, GM, KE, LS, MM, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, EG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LJ, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10349033	A1	20050525	DE 2003-10349033	20031022 <--
DE 102004003008	A1	20051006	DE 2004-102004003008	20040120 <--
EP 1675930	A1	20060705	EP 2004-790695	20041021 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
CN 1894357	A	20070110	CN 2004-80031198	20041021 <--
JP 2007517079	T	20070628	JP 2006-536042	20041021 <--
KR 2006090833	A	20060816	KR 2006-707587	20060420
US 20070080343	A1	20070412	US 2006-576920	20060424
US 7659540	B2	20100209		
PRIORITY APPLN. INFO.:				
DE 2003-10349033 A 20031022				
DE 2004-102004003008A 20040120				
WO 2004-EP11888 W 20041021				

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Organic semiconductors are described which comprise  $\geq 1$  polymer,  $\geq 1$  structural units including double bonds, and  $\geq 1$  triplet emitter (with certain restrictions). Electronic devices employing the materials in active layers are also described. The use of the materials in organic light-emitting diodes, organic lasers, and organic solar cells, and for nonlinear optical applications, is also described.

IT 824426-27-9  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(organic semiconductors incorporating triplet emitters and their uses and electronic devices employing them)

RN 824426-27-9 CAPLUS  
CN Phosphine oxide, phenylbis(9,9'-spirobi[9H-fluorene]-2-yl)- (CA INDEX NAME)

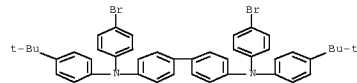


IT 851182-51-0 851182-54-2 851182-58-6

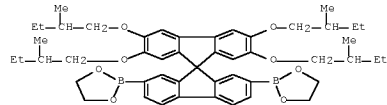
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)  
(organic semiconductors incorporating triplet emitters and their uses and electronic devices employing them)

RN 851182-52-0 CAPLUS  
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with bis(4-bromophenyl)phenylphosphine oxide, 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

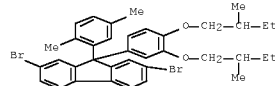
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CRN 463944-36-7  
CMF C44 H42 Br2 N2



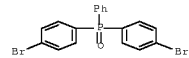
CM 2  
CRN 396123-43-6  
CMF C49 H62 B2 O8



CM 3  
CRN 396123-39-0  
CMF C37 H40 Br2 O2

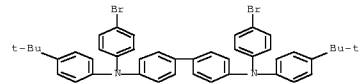


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CRN 93869-52-4  
CMF C16 H13 Br2 O P

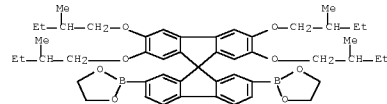


RN 851182-54-2 CAPLUS  
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with bis(4-bromophenyl)phenylphosphine oxide, 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

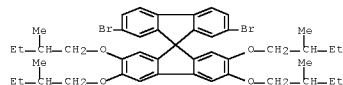
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CRN 463944-36-7  
CMF C44 H42 Br2 N2



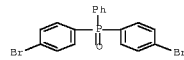
CM 2  
CRN 396123-43-6  
CMF C49 H62 B2 O8



CM 3  
CRN 395059-23-1  
CMF C45 H54 Br2 O4

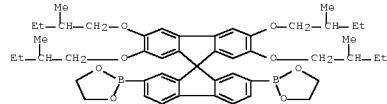


CM 4  
CRN 93869-52-4  
CMF C18 H13 Br2 O P

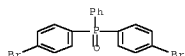


RN 851182-58-6 CAPLUS  
CN Phosphine oxide, bis(4-bromophenyl)phenyl-, polymer with 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

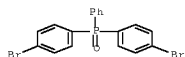
CM 1  
CRN 396123-43-6  
CMF C49 H62 B2 O8



CM 2  
CRN 93869-52-4  
CMF C18 H13 Br2 O P



IT 9369-32-48, Bis(4-bromophenyl)phenylphosphine oxide  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (organic semiconductors incorporating triplet emitters and their uses and  
 electronic devices employing them)  
 RN 9369-52-4 CAPLUS  
 CN Phosphine oxide, bis(4-bromophenyl)phenyl- (CA INDEX NAME)

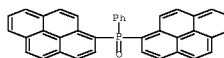


OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
 (4 CITINGS)  
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

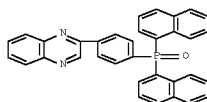
L11 ANSWER 30 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:302703 CAPLUS Full-text  
 DOCUMENT NUMBER: 142:363467  
 TITLE: Organic electroluminescent device  
 INVENTOR(S): Murase, Seichiro; Tominaga, Takeshi; Kitazawa,  
 Daisuke  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005093425	A	20050407	JP 2004-233139	20040810 <--
PRIORITY APPLN. INFO.: JP 2003-207260 A 20030812				
AB The invention relates to an organic electroluminescence device comprising an electron transporting layer composed of a 1st electron transporting layer in contact with an electroluminescent layer and a 2nd electron transporting layer in contact with a cathode, wherein the heteroatom. compound containing an electron accepting nitrogen atom is included in the 2nd electron transporting layer for enhancing the quantum efficiency.				
IT 721969-93-3	721969-96-6	724755-84-4		
724755-85-5	724755-86-6	849091-56-1		
849091-57-2				

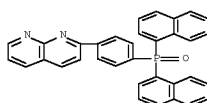
RL: DEV (Device component use); USES (Uses)  
 (electron transporting layer; organic electroluminescent device)  
 RN 721969-93-3 CAPLUS  
 CN Phosphine oxide, phenyldi-1-pyrenyl- (CA INDEX NAME)



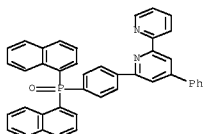
RN 721969-96-6 CAPLUS  
 CN Quinoxaline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)



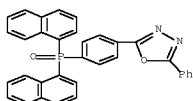
RN 724755-84-4 CAPLUS  
 CN 1,8-Naphthyridine, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)



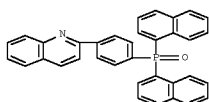
RN 724755-85-5 CAPLUS  
 CN 2,2'-Bipyridine, 6-[4-(di-1-naphthalenylphosphinyl)phenyl]-4-phenyl- (CA INDEX NAME)



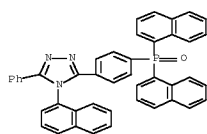
RN 724755-86-6 CAPLUS  
 CN 1,3,4-Oxadiazole, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]-5-phenyl- (CA INDEX NAME)



RN 849091-56-1 CAPLUS  
 CN Quinoline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)

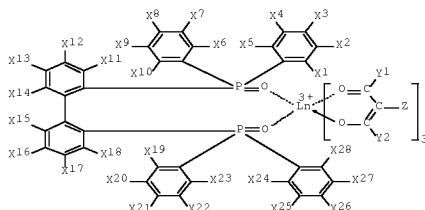


RN 849091-57-2 CAPLUS  
 CN 4H-1,2,4-Triazole, 3-[4-(di-1-naphthalenylphosphinyl)phenyl]-4-(1-naphthalenyl)-5-phenyl- (CA INDEX NAME)



L11 ANSWER 31 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:275700 CAPLUS Full-text  
 DOCUMENT NUMBER: 142:363391  
 TITLE: Rare earth  
 [bis(diphenylphosphinyl)biphenyl](acetylacetonate)  
 phosphors showing high luminescence intensity, and  
 lasers, optical materials, and light-  
 emitting devices using them  
 INVENTOR(S): Hasegawa, Seiya; Yanagida, Shozo; Wada, Yuji  
 PATENT ASSIGNEE(S): Kansai Technology Licensing Organization Co., Ltd.,  
 Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005082529	A	20050331	JP 2003-315948	20030908 <--
JP 4378139	B2	20091202		
PRIORITY APPLN. INFO.: JP 2003-315948 20030908				
OTHER SOURCE(S): MARPAT 142:363391				
GI				



AB The phosphors are I (Ln = rare earth element; X1-X28 = H, D, halo, C1-20 substituent, etc.; Y1,Y2 = C1-20 substituent, OH, NO2, etc.; Z = H, D). Thus, I (Ln = Eu, X1-X28 = H, Y1 = Y2 = CF3, Z = D) showed sharp fluorescent peak.

IT 89852-75-98 174467-54-06  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(rare earth [bis(diphenylphosphinyl)biphenyl](acetylacetonate) phosphors showing high luminescence intensity for lasers, optical materials, and light-emitting devices)

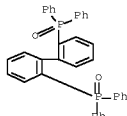
RN 88652-75-9 CAPLUS

CN Phosphine oxide, (2-iodophenyl)diphenyl- (CA INDEX NAME)



RN 174467-54-0 CAPLUS

CN Phosphine oxide, 1,1'-(1,1'-biphenyl)-2,2'-diylbis[1,1-diphenyl- (CA INDEX NAME)



IT 791-28-6, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(rare earth [bis(diphenylphosphinyl)biphenyl](acetylacetonate) phosphors showing high luminescence intensity for lasers, optical materials, and light-emitting devices)

RN 791-28-6 CAPLUS

CN Phosphine oxide, triphenyl- (CA INDEX NAME)

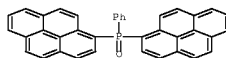


L11 ANSWER 32 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2005:123863 CAPLUS Full-text  
DOCUMENT NUMBER: 142:363368  
TITLE: Extremely low-voltage driving of organic light-emitting diodes with a Cs-doped phenyldipyrrenylphosphine oxide layer as an electron-injection layer  
AUTHOR(S): Oyamada, Takahito; Sasabe, Hiroyuki; Adachi, Chihaya; Murase, Seiichi; Tominaga, Tsuyoshi; Maeda, Chiharu  
CORPORATE SOURCE: Department of Photonics Materials Science, Chitose Institute of Science and Technology (CIST), Chitose, 066-8655, Japan  
SOURCE: Applied Physics Letters (2005), 86(3), 033503/1-033503/3  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB We demonstrated efficient electron injection and transport in organic light-emitting diodes using an electron-transport layer (ETL) composed of a Cs and phenyldipyrrenylphosphine oxide (POPy2) co-deposited layer. In particular, an ETL composed of a Cs:POPy2 layer with an atomic ratio of 1:2 demonstrated an extremely low driving voltage, resulting in a high c.d. of 100 mA/cm2 at an applied voltage of only 3.9 V. The results of Kelvin probe and absorption measurements indicated that the formation of a CsAl alloy layer at the Cs:POPy2/Al cathode interface and the charge-transfer complex between the Cs and POPy2 contributed to enhancing the efficiency of electron injection and transport, resp.

IT 721969-93-3  
RL: CFS (Chemical process); DEV (Device component use); PEF (Physical, engineering or chemical process); FRP (Properties); PROC (Process); USES (Uses)  
(POPy2; extremely low-voltage driving of organic light-emitting diodes with Cs-doped phenyldipyrrenylphosphine oxide layer as electron-injection layer)

RN 721969-93-3 CAPLUS

CN Phosphine oxide, phenyldi-1-pyrenyl- (CA INDEX NAME)



IT 721969-93-3D, cesium complexes  
RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)  
(charge transfer complex; extremely low-voltage driving of organic light-emitting diodes with Cs-doped phenyldipyrrenylphosphine oxide layer as electron-injection layer)

RN 721969-93-3 CAPLUS

CN Phosphine oxide, phenyldi-1-pyrenyl- (CA INDEX NAME)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 33 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2005:77888 CAPLUS Full-text  
DOCUMENT NUMBER: 142:186234  
TITLE: Light emitting devices based on hyperbranched polymers with lanthanide ions  
INVENTOR(S): Vitukhnovsky, Alexei; Krivoslykov, Sergei  
PATENT ASSIGNEE(S): Altair Center, LLC., USA  
SOURCE: U.S. Pat. Appl. Publ., 18 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

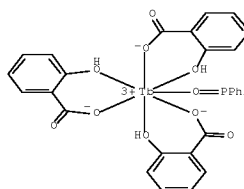
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050017629	A1	20050127	US 2003-625301	20030722 <--
PRIORITY APPLN. INFO.:			US 2003-625301	20030722

AB Multilayered light-emitting devices formed on transparent substrates which comprise an active emitting layer, a hole-injecting electrode, a hole transfer layer, an electron-injecting electrode, and an electron transfer layer in which the active layer comprises organic or organometallic materials having a locus with good energy accepting properties and high light emitting efficiency embedded into a periphery with high electronic excitation and energy donating properties, collecting electron and hole charge carriers producing excited states via the electron-hole recombination process followed by electronic excitation energy transfer from the periphery to the locus (antenna effect) and converting the energy into the emitting light are described in which the locus comprises lanthanide 3+ ions, the periphery has hyperbranched dendrimer-like architecture providing efficient energy transfer, and spatial separation of the light emitting locus centers is ensured to prevent concentration self-quenching of their luminescence light emission (shell-effect).

IT 691009-37-76 691009-28-86  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(light-emitting devices based on lanthanide ions with dendrimers or hyperbranched polymers)

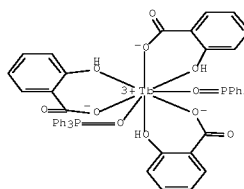
RN 691009-37-7 CAPLUS

CN Terbium, tris[2-(hydroxy-ko)benzoato-ko]bis(triphenylphosphine oxide-ko)- (CA INDEX NAME)



RN 691009-38-8 CAPLUS

CN Terbium, tris[2-(hydroxy-ko)benzoato-ko]bis(triphenylphosphine oxide-ko)- (CA INDEX NAME)



L11 ANSWER 34 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2005:34835 CAPLUS Full-text  
DOCUMENT NUMBER: 142:143611  
TITLE: Mixtures of organic emissive semiconductors and matrix materials, their use and electronic components comprising the materials  
INVENTOR(S): Becker, Heinrich; Gerhard, Anja; Stoessel, Philipp; Vestweber, Horst  
PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
SOURCE: PCT Int. Appl., 41 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

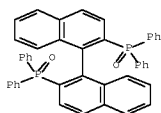
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005003253 A2 20050113 WO 2004-EP7421 20040707 <--  
WO 2005003253 A3 20050428  
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RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
DE 10330761 A1 20050203 DE 2003-10330761 20030707 <--  
DE 10355380 A1 20050630 DE 2003-10355380 20031125 <--  
EP 1644459 A2 20060412 EP 2004-740735 20040707 <--  
R: DE, FR, GB, NL  
CN 1820061 A 20060816 CN 2004-80019557 20040707 <--  
JP 2009513737 T 20090402 JP 2006-518130 20040707 <--  
US 20060255332 A1 20061116 US 2006-563716 20060411  
DE 2003-10330761 A 20030707  
DE 2003-10355380 A 20031125  
WO 2004-EP7421 W 20040707

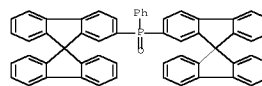
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Mixts. are described which comprise 21 matrix material having a structural unit are described by the general formula Q:Y where X has 21 nonbonded electron pair and Q = P, As, Sb, Bi, S, Se, or Te, and 21 emissive material which emits light when appropriately excited and which includes 21 element having an atomic number >20. The matrix material may comprise a polymer or dendrimer. Electronic devices (e.g., organic light-emitting diodes, organic integrated circuits, organic field-effect transistors, organic thin-film transistors, organic solar cells, organic optical detectors, organic electrophotographs, photoreceptors, or organic laser diodes) employing the materials are also described.

IT 86632-33-98 824426-27-98  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(mixts. of organic emissive materials and matrix materials and the materials and electronic components using the mixts.)  
RN 86632-33-9 CAPLUS  
CN Phosphine oxide, 1,1'-[1,1'-binaphthalene]-2,2'-diylbis[1,1-diphenyl- (CA INDEX NAME)



RN 824426-27-9 CAPLUS  
CN Phosphine oxide, phenylbis(9,9'-spirobi[9H-fluoren]-2-yl)- (CA INDEX NAME)



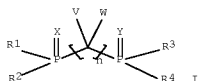
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L11 ANSWER 35 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:1154436 CAPLUS Full-text  
DOCUMENT NUMBER: 142:82016  
TITLE: Light emitting device containing a rare earth complex as luminescent medium  
INVENTOR(S): Iwanaga, Hiroki; Aiga, Fumihiko; Shida, Naomi; Amano, Akio  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan  
SOURCE: Eur. Pat. Appl., 19 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1492173	A2	20041229	EP 2004-253787	20040624 <--
EP 1492173	A3	20080813		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2005015564	A	20050120	JP 2003-179811	20030624 <--
JP 3811142	B2	20060816		
US 20040265631	A1	20041230	US 2004-873282	20040623 <--
US 7250117	B2	20070731		
KR 2005001357	A	20050106	KR 2004-46895	20040623 <--
CN 1575066	A	20050202	CN 2004-1005034	20040624 <--
KR 2006120518	A	20061127	KR 2006-101340	20061018
US 20070236129	A1	20071011	US 2007-763197	20070614
US 7510784	B2	20090331		

PRIORITY APPLN. INFO.:  
JP 2003-179811 A 20030624  
KR 2004-46895 A3 20040623  
US 2004-873282 A3 20040623

OTHER SOURCE(S): MARPAT 142:82016  
GI

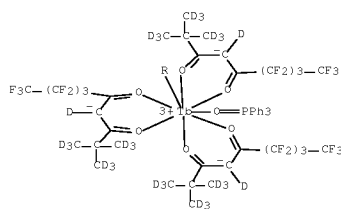


AB The invention refers to an electroluminescent device comprising a luminescent medium containing a rare earth complex with a ligand I [X, Y = O, S or Se; R1-4 = linear or branched alkyl or alkoxy having <20 C atoms, Ph, biphenyl, naphthyl, heterocycle or substitution product of any of these groups, wherein R1, R2, R3 and R4 may not all be the same; n = integer 2 - 20; and Z, W = H, D, halo or alkyl].

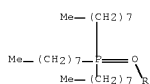
IT 815586-61-9 815586-61-9  
RL: DEV (Device component use); USES (Uses)  
(light emitting device containing a rare earth complex as luminescent medium)

RN 815586-61-9 CAPLUS  
CN Terbium, tris[6,6,7,7,8,8,9,9,9-nonafluoro-2,2-di(methyl-d3)-3,5-nonanedion-1,1,1,4-d4-ato-KO,KO'] (triocetylphosphine oxide-KO) (triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)

PAGE 1-A

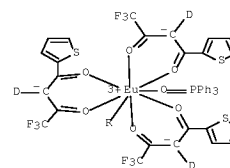


PAGE 2-A

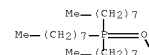


RN 815586-64-2 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedion-2-d-ato-KO,KO'] (triocetylphosphine oxide-KO) (triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)

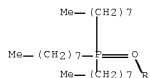
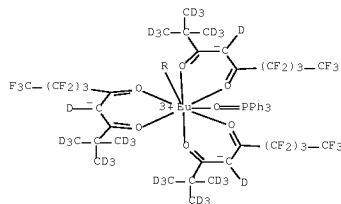
PAGE 1-A



PAGE 2-A



IT 815586-55-1P  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(light emitting device containing a rare earth complex as luminescent medium)  
RN 815586-55-1 CAPLUS  
CN Europium, tris[6,6,7,7,8,8,9,9,9-nonafluoro-2,2-di(methyl-d3)-3,5-nonanedion-1,1,1,4-d4-ato-KO,KO'] (triocetylphosphine oxide-KO) (triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



IT 791-28-6, Triphenyl phosphine oxide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (light emitting device containing a rare earth complex  
 as luminescent medium)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
 (5 CITINGS)

L11 ANSWER 36 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2004:1037202 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 142:13503  
 TITLE: Light-emitting device and phosphor  
 INVENTOR(S): Murayama, Tetuo; Yabe, Akiko; Shimizu, Kanji; Shoda, Takayuki; Yoshino, Masahiko  
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan

SOURCE: ECT Int. Appl., 65 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

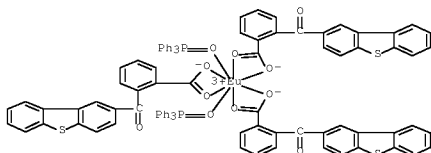
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004104136	A1	20041202	WO 2004-JP7331	20040521 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LI, LU, LV, MA, MD, ME, MG, MN, MW, MX, MY, NA, NI, NO, NZ, OM, OS, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2005008872	A	20050113	JP 2004-152324	20040521 <--
EP 1640429	A1	20060329	EP 2004-745383	20040521 <--
R: DE				
CN 1795252	A	20060628	CN 2004-80014152	20040521 <--
US 20060172148	A1	20060803	US 2005-283870	20051122 <--
US 7282160	B2	20071016		
US 20070085057	A1	20070419	US 2006-557686	20061108
US 7396488	B2	20080708		
PRIORITY APPLN. INFO.:				
			JP 2003-144388	A 20030522
			WO 2004-JP7331	W 20040521
			US 2005-283870	A3 20051122

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A light-emitting device is disclosed which can emit light with high intensity by using a phosphor containing a rare earth ion complex with excellent durability. A phosphor used in such a device is also disclosed. The light-emitting device is characterized by comprising a semiconductor light-emitting element which emits light in the range from the near-UV to the visible and a phosphor containing a rare earth ion complex which has an aromatic ring, contains a Bronsted acid ion having a pKa value of not more than 7 as a ligand, and produces light when illuminated with the light from the semiconductor light-emitting element.

IT 798561-81-6B  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (light-emitting device and phosphor)

RN 798561-81-6 CAPLUS  
 CN Europium, tris[2-(2-dibenzothienylcarbonyl)benzoato-KO, KO]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
 (4 CITINGS)  
 REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 37 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2004:1028554 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 142:186054  
 TITLE: Electrophosphorescence emission in organic light-emitting diodes based on (Sm + Eu) complexes  
 AUTHOR(S): Reyes, R.; Cremona, M.; Teotonio, E. E. S.; Brito, H. F.; Malta, O. L.  
 CORPORATE SOURCE: Departamento de Fisica, PUC-Rio, Pontificia Universidade Catolica de Rio de Janeiro, Rio de Janeiro, CEP 22453-970, Brazil  
 SOURCE: Thin Solid Films (2004), 469-470, 59-64  
 CODEN: THSFAP; ISSN: 0040-6090  
 PUBLISHER: Elsevier B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB In this work, we reported the preparation and the characterization of triple-layer electroluminescent organic devices using different blends of the samarium and europium  $\beta$ -diketonate complexes [SmEu(TTA)<sub>3</sub>(TPPO)<sub>2</sub>] (x = 0.7, 0.9; y = 0.3, 0.1) as emitting layer. The organic light-emitting diode (OLED) devices contained 1-(3-methylphenyl)-1,2,3,4-tetrahydroquinoline-6-carboxyaldehyde-1,1'-diphenylhydrazone (MTCO) as hole-transporting layer and tris(8-hydroxyquinoline) aluminum (Alq<sub>3</sub>) as electron transporting layer. The electroluminescence (EL) spectra present emission narrow bands characteristic of the Sm<sup>3+</sup> and Eu<sup>3+</sup> ions overlapped with a broad band attributed to the mol. electrophosphorescence (EP) from the triplet-singlet (T<sub>1</sub>→S<sub>0</sub>) transition from the TTA ligand. The intensity ratio of the peaks is determined by the bias voltage applied to the OLED and this fact, together with the ligand electrophosphorescence, allows fabrication of a voltage-tunable color light source.

IT 791-28-6, Triphenylphosphine oxide  
 RL: DEV (Device component use); FRP (Properties); USES (Uses)  
 (emitting layer; electrophosphorescence emission in organic light-emitting diodes based on (Sm+Eu) complexes)

RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD  
 (8 CITINGS)  
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

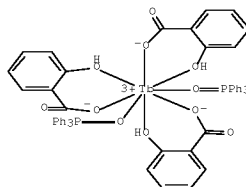
L11 ANSWER 38 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2004:849403 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 143:67475  
 TITLE: The topography of organic light-emitting diode-component functional layers as studied by atomic force microscopy  
 AUTHOR(S): Kotova, Oksana V.; Eliseeva, Svetlana V.; Perevedentseva, Elena V.; Limonova, Tatyana F.; Baigeldieva, Raida A.; Vitukhnovsky, Alexey G.; Kuzmina, Natalia F.  
 CORPORATE SOURCE: Department of Materials Science, M. V. Lomonosov Moscow State University, Moscow, 119992, Russia  
 SOURCE: Mendeleev Communications (2004), (4), 155-157  
 CODEN: MENCX; ISSN: 0959-9436  
 PUBLISHER: Russian Academy of Sciences  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The layer-by-layer roughness of organic LED (OLED)-component functional thin films deposited from different solvents by a spin-coating method was studied using atomic force microscopy (AFM) facilities.

IT 891009-38-8, Tris(salicylate)bis(triphenylphosphine oxide)terbium

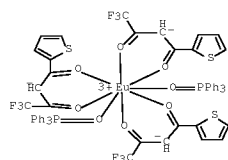
RL: DEV (Device component use); USES (Uses)  
 (atomic force microscopy of organic LED component functional layers containing)

RN 691009-38-8 CAPLUS  
 CN Terbium, tris[2-(hydroxy-KO)benzoato-KO]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



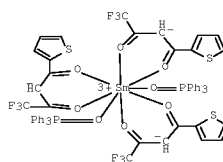
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 39 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:745936 CAPLUS Full-text  
DOCUMENT NUMBER: 141:429309  
TITLE: Voltage color tunable OLED with (Sm,Eu)- $\beta$ -diketonate complex blend  
AUTHOR(S): Reyes, R.; Cremona, M.; Teotonio, E. E. S.; Brito, H. F.; Malta, O. L.  
CORPORATE SOURCE: PUC-Rio, LOEM - Departamento de Fisica, Rio de Janeiro, 22452-970 RJ, Brazil  
SOURCE: Chemical Physics Letters (2004), 396 (1-3), 54-58  
CODEN: CHPLBC; ISSN: 0009-2614  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Light emission from organic electroluminescent diodes (OLEDs) in which mixed Sm and Eu  $\beta$ -diketonate complexes, [Sm0.7Eu0.3(TTA)3(TPPO)2], was used as the emitting layer is described. The electroluminescence spectra exhibit narrow peaks arising from 4f-intraconfigurational transitions of the Sm<sup>3+</sup> and Eu<sup>3+</sup> ions and a broad emission band attributed to the electrophosphorescence of the TTA ligand. The intensity ratio of the peaks determined by the bias voltage applied to the OLED, together with the ligand electrophosphorescence, allows to obtain a voltage-tunable color light source.  
II 12121-29-85, solid solns. with samarium analog  
492440-34-X, solid solns. with europium analog  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(voltage color tunable OLED with (Sm,Eu)- $\beta$ -diketonate complex blend)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O1, $\kappa$ O3]bis(triphenylphosphine oxide- $\kappa$ O)- (CA INDEX NAME)



RN 492440-34-3 CAPLUS  
CN Samarium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O1, $\kappa$ O3]bis(triphenylphosphine oxide- $\kappa$ O)- (9CI) (CA

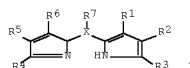
INDEX NAME)



OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE THIS RECORD (24 CITINGS)  
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 40 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:569278 CAPLUS Full-text  
DOCUMENT NUMBER: 141:131039  
TITLE: Electroluminescent device  
INVENTOR(S): Murase, Seiichiro; Tominaga, Takeshi; Kitazawa, Daiuke  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

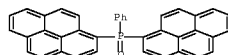
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004200162	A	20040715	JP 2003-407179	20031205 <--
PRIORITY APPLN. INFO.:			JP 2002-353461	A 20021205
OTHER SOURCE(S):		MARPAT 141:131039		
GI				



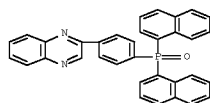
AB The invention relates to an electroluminescent device, suited for use in making a white light-emitting device, comprising an electroluminescent layer containing a pyromethene compound or its metal complex, represented by I [R1-7 = H, alkyl, cycloalkyl, etc.; X = N and C, when X = N, then R7 = null], and

an electron transporting layer having the ionization potential  $\geq 5.8$  eV. The metal forming the complex with the pyromethene compound I is selected from B, Be, Mg, Cr, Fe, Co, Ni, Cu, Zn, and Pt.

II 721969-93-3  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(electron transporting material; organic electroluminescent device)  
RN 721969-93-3 CAPLUS  
CN Phosphine oxide, phenyl-di-1-pyrenyl- (CA INDEX NAME)



RN 721969-96-6 CAPLUS  
CN Quinoxaline, 2-[4-(di-1-naphthalenylphosphinyl)phenyl]- (CA INDEX NAME)

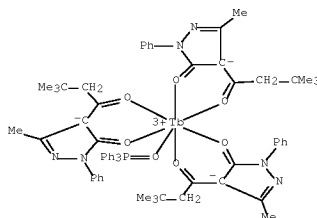


OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L11 ANSWER 41 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:506931 CAPLUS Full-text  
DOCUMENT NUMBER: 141:267636  
TITLE: The Effect of Different Neutral Ligands on Photoluminescence and Electroluminescence Properties of Ternary Terbium Complexes  
AUTHOR(S): Xin, Hao; Shi, Mei; Gao, Xi Cun; Huang, Yan Yi; Gong, Ze Liang; Nie, Dao Bo; Cao, Hong; Bian, Zu Qiang; Li, Fu You; Huang, Chun Hui  
CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
SOURCE: Journal of Physical Chemistry B (2004), 108 (30), 10796-10800  
CODEN: JPCHFK; ISSN: 1520-6106  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Three terbium complexes Tb(tba-FMP)3(TPPO) (A), Tb(tba-FMP)3(H2O) (B), and Tb(tba-FMP)3(Phen) (C) (where tba-FMP, TPPO, and Phen stand for  $\beta$ -diketonate 1-phenyl-3-methyl-4-(tert-butylacetyl)-5-pyrazolone, tri-Ph phosphine oxide, and 1,10-phenanthroline, resp.) with different neutral ligands were synthesized

and characterized, and the mechanism of how the neutral ligands affect photoluminescence (PL) and electroluminescence (EL) properties of terbium complexes was studied. Expts. revealed neutral ligand TPPO and Phen strongly affect the terbium complex PL intensity, TPPO enhanced the PL intensity of complex A, while Phen reduced the PL intensity of complex C compared to that of complex B. Investigation indicated this is caused by the different excited energy levels between tba-FMP, TPPO, and Phen, which were obtained from their phosphorescence spectra measured with their corresponding gadolinium complexes Gd(tba-FMP)3(H2O) (EtOH), Gd(TPPO)2(NO3)3, and Gd(Phen)2(NO3)3. Compared to complex B, the energy absorbed by TPPO can be efficiently transferred to tba-FMP and the central ion Tb<sup>3+</sup> due to its excited singlet and triplet energy levels matching that of tba-FMP and the 5D4 energy level of Tb<sup>3+</sup>, and consequently enhancing the PL intensity of A, while on the contrary, neg. energy transfer occurred between Phen and tba-FMP or Tb<sup>3+</sup> since the triplet energy level of Phen is lower than that of tba-FMP and the 5D4 energy level of Tb<sup>3+</sup> as well. Exptl. results show terbium complex electroluminescence (EL) is greatly dependent on its PL intensity, the performance achieved based on complexes A, B, and C being 9540 cd/m<sup>2</sup> and 7.2 lm/W, 3230 cd/m<sup>2</sup> and 1.17 lm/W, and 690 cd/m<sup>2</sup> and 0.13 lm/W, resp., with the power efficiency ratio A:B:C = 55:9:1, which was greatly enlarged compared to their PL intensity ratio A:B:C = 2.1:1.3:1.

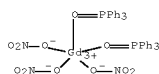
II 756500-50-2P  
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation) (effect of different neutral ligands on luminescence and electroluminescence properties of ternary terbium complexes)  
RN 756500-50-2 CAPLUS  
CN Terbium, tris[4-[3,3-dimethyl-1-(oxo- $\kappa$ O)butyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato- $\kappa$ O3](triphenylphosphine oxide- $\kappa$ O)-, (PB-7-13''-22'3'2''3)- (CA INDEX NAME)



II 756500-52-6, Triphenylphosphine oxide 756500-52-4  
RL: PRP (Properties)  
(effect of different neutral ligands on luminescence and electroluminescence properties of ternary terbium complexes)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



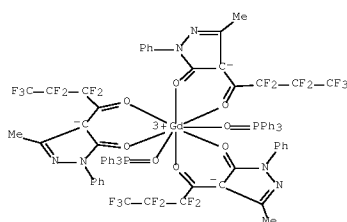
RN 756500-52-4 CAPLUS  
CN Gadolinium, tris(nitrato-K0)bis(triphenylphosphine oxide-K0)-  
(CA INDEX NAME)



OS.CITING REF COUNT: 37 THERE ARE 37 CAPLUS RECORDS THAT CITE THIS  
RECORD (37 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 42 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:257767 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 141:44623  
TITLE: Voltage-independent pure red devices based on a  
carbazole-functionalized europium complex  
AUTHOR(S): Xin, Hao; Sun, Min; Wang, Ke Zhi; Zhang, Yong An; Jin,  
Lin Fei; Huang, Chun Hui  
CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry  
and Applications, Department of Chemistry, Peking  
University, Beijing, 100871, Peop. Rep. China  
SOURCE: Chemical Physics Letters (2004), 388(1-3),  
55-57  
CODEN: CHPLBC; ISSN: 0009-2614  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Electroluminescent properties of carbazole-functionalized complex  
tris(dibenzoylmethanato)(1-ethyl-2-(N-ethyl-carbazole-yl-4)imidazo[4,5-  
fj],10-phenanthroline)europium(III) (Eu(DBM)3Phencarz) was studied. By using  
complex tris(1-phenyl-3-methyl-4-isobutyl-5-pyrazolone)-bis(tri-Ph phosphine  
oxide) Gd Gd(FMIP)3(TPPO)2 as electron-transport layer, hole and electron  
injection was relatively balanced in the emitting layer and a device with the  
configuration of ITO/TFD (20 nm)/(Eu(DBM)3Phencarz) (40 nm)/Gd(FMIP)3(TPPO)  
(20 nm)/AlQ (30 nm)/Mg:Ag emitted voltage-independent characteristic Eu light  
with the luminance of 1193 cd/m2, power efficiency 1.68 lm/W.  
IT 133453-00-6  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(voltage-independent pure red devices based on a  
carbazole-functionalized europium complex)  
RN 133453-00-6 CAPLUS  
CN Gadolinium, tris[4-[2,2,3,3,4,4,4-heptafluoro-1-(oxo-K0)butyl]-2,4-  
dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-

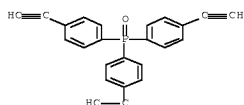
K0]bis(triphenylphosphine oxide-K0)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS  
RECORD (12 CITINGS)  
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 43 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:234601 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 141:24064  
TITLE: New hyperbranched poly(aryleneethynylene)s: synthesis,  
thermal stability and light-emitting  
properties  
AUTHOR(S): Haeussler, Matthias; Lam, Jacky Wing Yip; Tong, Hui;  
Zheng, Ronghua; Tang, Ben Zhong  
CORPORATE SOURCE: Department of Chemistry, Hong Kong University of  
Science and Technology, Hong Kong, Peop. Rep. China  
SOURCE: Polymer Preprints (American Chemical Society, Division  
of Polymer Chemistry) (2004), 45(1), 895-896  
CODEN: ACPPAY; ISSN: 0032-3934  
PUBLISHER: American Chemical Society, Division of Polymer  
Chemistry  
DOCUMENT TYPE: Journal; (computer optical disk)  
LANGUAGE: English  
AB A group of new conjugated hyperbranched poly(aryleneethynylene)s (HPEAs) has  
been prepared by oxidative coupling of alkynes using CuCl as catalyst. The  
hyperbranched structures of the HPEAs are confirmed by standard spectroscopic  
anal. All of the HPEAs exhibit outstanding thermal stability and emitting  
strong UV light. Such materials may find an array of high-tech. applications.  
IT 698370-87-5UF, heptyloxyphenylacetylene-terminated  
698370-87-5P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis, thermal stability and light-emitting  
properties of hyperbranched poly(aryleneethynylene)s)  
RN 698370-87-5 CAPLUS  
CN Phosphine oxide, tris(4-ethynylphenyl)-, homopolymer (9CI) (CA INDEX  
NAME)  
CM 1

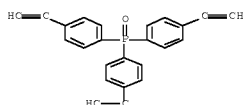
CRN 676456-02-3  
CMF C24 H15 O P



RN 698370-87-5 CAPLUS  
CN Phosphine oxide, tris(4-ethynylphenyl)-, homopolymer (9CI) (CA INDEX  
NAME)

CM 1

CRN 676456-02-3  
CMF C24 H15 O P

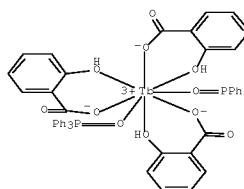


REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

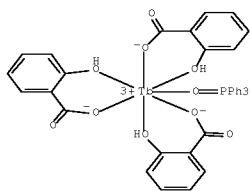
L11 ANSWER 44 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:187999 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 140:430676  
TITLE: Electroluminescent properties of the mixed-ligand  
complex of terbium salicylate with triphenylphosphine  
oxide  
AUTHOR(S): Eliseeva, Svetlana; Kotova, Oksana; Mirzov, Oleg;  
Anikin, Kirill; Lepnev, Leonid; Perevedentseva, Elena;  
Vitukhnovsky, Alexei; Kuzmina, Natalia  
CORPORATE SOURCE: Laboratory of Coordination Chemistry, Department of  
Chemistry, Lomonosov Moscow State University, Moscow,  
119992, Russia  
SOURCE: Synthetic Metals (2004), 141(3), 225-230  
CODEN: SYMED2; ISSN: 0379-6779  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A novel mixed-ligand Tb complex Tb(Sal)3(TPPO)2 was synthesized and  
characterized by elemental, IR and thermal analyses. The film-forming

properties of the new Tb(Sal)3(TPPO)2 and the known Tb(Sal)3.H2O complexes in  
spin-coating process were compared. The study of thin films morphol. with  
NSOM/AFM microscope showed that the root-mean-square roughness for the  
Tb(Sal)3(TPPO)2 films was 9 nm in contrast to 66 nm for Tb(Sal)3.H2O ones.  
The electroluminescent (EL) device structure ITO/PEDOT/PVK/Tb(Sal)3(TPPO)2/Al  
was employed to study the electroluminescence of the Tb carboxylate complex.  
The EL spectrum with sharp spectral band at 545 nm peak wavelengths confirms  
that emission comes exclusively from Tb ions. The EL emission was observed at  
biases >12 V. A considerable difference between the EL and EL spectra was  
observed and a possible way of explaining the phenomenon was proposed.

IT 691009-38-8P  
RL: DEV (Device component use); PEP (Physical, engineering or chemical  
process); PRP (Properties); PYP (Physical process); SPN (Synthetic  
preparation); PREP (Preparation); PROC (Process); USES (Uses)  
(preparation and electroluminescence and IR spectra and thermal  
decomposition and use in LED of)  
RN 691009-38-8 CAPLUS  
CN Terbium, tris[2-(hydroxy-K0)benzoato-K0]bis(triphenylphosphine  
oxide-K0)- (CA INDEX NAME)



IT 691009-37-7P  
RL: DEV (Device component use); PEP (Physical, engineering or chemical  
process); PRP (Properties); PYP (Physical process); SPN (Synthetic  
preparation); PREP (Preparation); PROC (Process); USES (Uses)  
(preparation and electroluminescence and IR spectra and thermal  
decomposition of)  
RN 691009-37-7 CAPLUS  
CN Terbium, tris[2-(hydroxy-K0)benzoato-K0](triphenylphosphine  
oxide-K0)- (CA INDEX NAME)



OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS RECORD (16 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 45 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2004:45304 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:67448  
 TITLE: Rare earth organic luminescent material emitting narrow band of IR  
 INVENTOR(S): Li, Wenlian; Hong, Ziruo; Liang, Chunjun; Li, Ruigang  
 PATENT ASSIGNEE(S): Changchun Research Institute of Optical Precision Machinery and Physics, Chinese Academy of Sciences, Peop. Rep. China  
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.  
 CODEN: CNXKEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

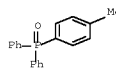
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1350049	A	20020522	CN 2000-131911	20001019 <--
PRIORITY APPLN. INFO.:			CN 2000-131911	20001019

AB The double-layer electroluminescence device (film, or glassy sheet) was prepared from rare earth (RE) complex such as RE(III)M3N, RE(III)M3, or RE(III)M3N2 (M = the first ligand such as succinic acid, glutaric acid, aromatic dicarboxylic acid, malic acid (Sal), acetylacetone (AcA), dibenzoylmethane (DBM), alpha-thienylcarbonyltrifluoroacetone (TfA), benzoylaceton, hexafluoroacetylacetone (HFA), 1,10-phenanthroline, 4,7-diphenyl-1,10-phenanthroline, 2,2'-dipyridine, triphenylphosphine oxide (TPPO), or triethylphosphine oxide (TOPO). The electroluminescence device can emit IR of 0.80-2.09  $\mu$ m under excitation of DC forward bias or laser radiation, which may be related to the 4f electronic transition of RE(III).

IT 791-25-6D, Triphenylphosphine oxide, rare earth metal complex  
 RL: DEV (Device component use); USES (Uses)  
 (rare earth organic luminescent material emitting narrow band of IR)  
 RN 791-28-6 CAPLUS  
 CN Phosphine oxide, triphenyl- (CA INDEX NAME)



L11 ANSWER 46 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:801203 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:17094  
 TITLE: Energy transfer in polystyrene containing pendant stilbene chromophores  
 AUTHOR(S): Wuyts, Cindy; Deraut, Wim; Hoefnagels, Roel; Aerts, Gert; Goovaerts, Etienne; Geise, Herman J.  
 CORPORATE SOURCE: Department of Chemistry, University of Antwerp (UIA), Wilrijk, B-2610, Belg.  
 SOURCE: Polymer International (2003), 52(10), 1660-1663  
 CODEN: PLYIEI; ISSN: 0959-8103  
 PUBLISHER: John Wiley & Sons Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Four different styrene copolymers with stilbene side chains were synthesized under Williamson ether or Wadsworth-Emmons conditions. Blends of these graft copolymers with 4,4'-bis[2,2-bis(4-methoxyphenyl)ethenyl]biphenyl (TMBiPPT), a good blue light-emitting oligomer, yielded efficient host-guest systems with only emission from the oligomer. TMBiPPT has a maximum absorption at 365 nm, and the emission spectra of the synthesized graft copolymers all had a significant spectral overlap with the absorption spectrum of TMBiPPT. Since we can tune both the structures of the graft copolymer and the oligomer, this is very promising for obtaining new materials to use in a single-layer organic light-emitting diode.  
 IT 6840-28-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (energy transfer in polystyrene containing pendant stilbene chromophores)  
 RN 6840-28-4 CAPLUS  
 CN Phosphine oxide, (4-methylphenyl)diphenyl- (CA INDEX NAME)

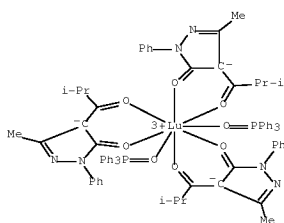


OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 47 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:735973 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:119598

TITLE: Photoluminescence and electroluminescence properties of three ternary lutetium complexes  
 AUTHOR(S): Xin, Hao; Shi, Mei; Li, Fu You; Guan, Min; Gao, De Qing; Huang, Chun Hui; Ibrahim, Kurash; Liu, Feng Qin  
 CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
 SOURCE: New Journal of Chemistry (2003), 27(10), 1485-1489  
 CODEN: NJCHE5; ISSN: 1144-0546  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Three Lu complexes, Lu(FMIP)3(TFPO)2 (A), Lu(FMIP)3Bipy (B) and Lu(FMIP)3Phen (C) (FMIP, TFPO, Bipy and Phen stand for 1-phenyl-3-methyl-4-isobutyl-5-pyrazolone, triphenylphosphine oxide, 2,2'-bipyridine and 1,10-phenanthroline, resp.), were synthesized and complex A was characterized by single-crystal x-ray diffraction anal. Complex A crystallized in the P21/n (14) space group. The photoluminescence spectra of the complexes reveal that all the complexes have a similar spectrum peaking near 440 nm; however, the intensity of the spectrum of complex A is approx. 100 times higher than that of the other 2 complexes. When these complexes were used to prepare light-emitting devices, that with complex A gave a blue light, originating from this complex, with the highest brightness of 119 cd m<sup>-2</sup> at an applied voltage of 19 V, while the same configuration devices using the other 2 complexes exhibited green light peaking at 512 nm, which arises from exciplexes formed at the interface of TPD and the corresponding Lu complex. A maximum luminance of 1010 cd m<sup>-2</sup> at 16 V from the exciplex was obtained with the highest power efficiency of 0.13 lm W<sup>-1</sup> at 9 V and a turn-on voltage 23 V for the device with a (ITO)/TPD(10 nm)/B(50 nm)/BCP(20 nm)/AlQ(40 nm)/MgO.9Ag0.1(100 nm)/Ag(100 nm) configuration.  
 IT 647022-55-7  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (photoluminescence and electroluminescence properties of ternary lutetium complexes)  
 RN 647022-55-7 CAPLUS  
 CN Lutetium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-kO)propyl]-2-phenyl-3H-pyrazol-3-onato-kO3]bis(triphenylphosphine oxide-kO)-, (TPS-8-12'3'123'132'')- (CA INDEX NAME)

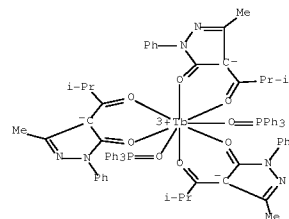


OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

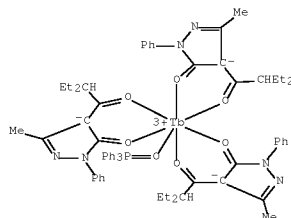
L11 ANSWER 48 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:648422 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:342936  
 TITLE: Carrier-Transport, Photoluminescence, and Electroluminescence Properties Comparison of a Series of Terbium Complexes with Different Structures  
 AUTHOR(S): Xin, Hao; Shi, Mei; Zhang, Xiao Mei; Li, Fu You; Bian, Zu Qiang; Ibrahim, K.; Liu, Feng Qin; Huang, Chun Hui  
 CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
 SOURCE: Chemistry of Materials (2003), 15(19), 3728-3733  
 CODEN: CMATEX; ISSN: 0897-4756  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Terbium complexes with different structures revealed different carrier-transport and photophys. properties. Complex A [tris(1-phenyl-3-methyl-4-isobutyl-5-pyrazolone)-bis(tri-Ph phosphine oxide), Tb(FMIP)3(TFPO)2] had overly strong electron-transport properties, complex B [Tb(FMIP)3(EtOH)(H2O)] mainly revealed hole-transport properties, and complex C [tris(1-phenyl-3-methyl-4-(2-ethylbutyl)-5-pyrazolone) tri-Ph phosphine oxide, Tb(FMIP)3(TFPO)] showed both electron- and hole-transport properties. Their PL intensity ratio was A-B-C = 2.6:1:1.2. The electroluminescence (EL) performances (brightness and peak power efficiency) achieved from complexes A, B, and C were 9600 cd/m<sup>2</sup> and 5.21 lm/W, 2800 cd/m<sup>2</sup> and 2.61 lm/W, and 12000 cd/m<sup>2</sup> and 11.3 lm/W, from device configurations of ITO/TPD-B-A-AlQ-MgO.9Ag0.1-Ag (20:20:50:30:200:80 nm), ITO/TPD-B-BCP-AlQ-MgO.9Ag0.1-Ag (40:30:20:20:200:80 nm), and ITO/NPB-B-BCP-AlQ-MgO.9Ag0.1-Ag (10:50:20:40:200:80 nm), resp. For a given Tb complex, balanced carrier injection and a well-confined recombination zone are crucial to obtaining maximum EL performance. More important, if this premise is satisfied, for different complexes, the higher the PL quantum yield the complex shows, the greatly improved the EL performance will be.  
 IT 207351-75-5 560106-43-6  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (carrier-transport, photoluminescence, and electroluminescence properties comparison of a series of terbium complexes with different structures)  
 RN 207351-75-5 CAPLUS  
 CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-kO)propyl]-2-phenyl-3H-pyrazol-3-onato-kO3]bis(triphenylphosphine oxide-kO)- (CA INDEX NAME)





RN 560106-43-6 CAPLUS

CN Terbium, tris[4-[2-ethyl-1-(oxo- $\kappa$ O)butyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato- $\kappa$ O3] (triphenylphosphine oxide- $\kappa$ O)-, (TPS-7-3-12''3'2'3'2)- (CA INDEX NAME)



OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)  
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 49 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:590870 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 139:159040

TITLE: Photoactive lanthanide complexes with phosphine oxides, phosphine oxide-sulfides, pyridine N-oxides, and phosphine oxide-pyridine N-oxides, and thin film QLED devices made with such complexes

INVENTOR(S): Grushin, Vladimir; Herron, Norman; Petrov, Viacheslav Alexandrovich; Radu, Nora Sabina; Wang, Ying

PATENT ASSIGNEE(S): E. I. Du Pont De Nemours and Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 18 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030144487	A1	20030731	US 2002-185484	20020627 <--
US 6875523	B2	20050405		
CA 2449740	A1	20031106	CA 2002-2449740	20020703 <--
WO 2003091688	A2	20031106	WO 2002-US21024	20020703 <--
WO 2003091688	A3	20040805		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, T2, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, T2, UG, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, FI, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GG, GW, ML, MR, NE, SN, TD, TG				
AU 2002367777	A1	20031110	AU 2002-367777	20020703 <--
EP 1465595	A2	20041013	EP 2002-807315	20020703 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1606431	A	20050413	CN 2002-813590	20020703 <--
JP 2005519988	T	20050707	JP 2004-500029	20020703 <--
TW 593626	B	20040621	TW 2002-91114969	20020705 <--
US 20050095202	A1	20050505	US 2004-11676	20041214 <--
US 7074505	B2	20060711		
US 20050095203	A1	20050505	US 2004-11699	20041214 <--
US 20050095204	A1	20050505	US 2004-11700	20041214 <--
US 7090931	B2	20060815		
US 20050100511	A1	20050512	US 2004-11668	20041214 <--
US 7063903	B2	20060620		
US 20050106109	A1	20050519	US 2004-11074	20041214 <--
US 7087323	B2	20060808		
US 20050153165	A1	20050714	US 2004-11225	20041214 <--
US 7074504	B2	20060711		

PRIORITY APPLN. INFO.:  
US 2001-303283P F 20010705  
US 2002-185484 A3 20020627  
WO 2002-US21024 W 20020703

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 139:159040

AB The present invention is generally directed to luminescent lanthanide compds. with phosphine oxide, phosphine oxide-sulfide, pyridine N-oxide, and phosphine oxide-pyridine N-oxide ligands, especially with  $\beta$ -enolate co-ligands. It also relates to thin film QLED electronic devices in which the active layer includes the photoactive lanthanide complex. Thus, Tb(FMBP)3(F5tpO)2 [FMBP = 4-isobutyl-3-methyl-1-phenyl-5-pyrazolinate, F5tpO = tris(pentafluorophenyl)phosphine oxide] was prepared and its electroluminescent properties were measured along with 7 other prepared complexes. Thin layer QLED devices were prepared including a hole transport layer, electroluminescent layer comprising the lanthanide complexes of the invention, and at least one electron transport layer. Various hole and

electron transport materials are also claimed. Cyclometalated iridium complexes derived from (un)substituted 2-phenylpyridines are preferred.

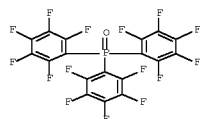
IT 2729-11-5, Tris(pentafluorophenyl)phosphine oxide

RL: RCT (Reactant); RACT (Reactant or reagent)

(coordination in luminescent lanthanide complexes)

RN 2729-11-5 CAPLUS

CN Phosphine oxide, tris(2,3,4,5,6-pentafluorophenyl)- (CA INDEX NAME)



IT 7731-28-8, Triphenylphosphine oxide

RL: RCT (Reactant); RACT (Reactant or reagent)

(for preparation of luminescent lanthanide  $\beta$ -enolate complexes containing phosphine oxides and analogs)

RN 791-28-6 CAPLUS

CN Phosphine oxide, triphenyl- (CA INDEX NAME)

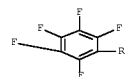
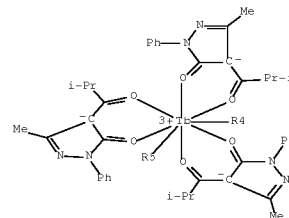


IT 569642-07-58 569642-12-2P

RL: DEV (Device component use); FRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation and electroluminescent properties as photoactive lanthanide complex for use in electronic devices)

RN 569642-07-5 CAPLUS

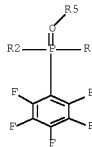
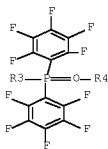
CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo- $\kappa$ O)propyl]-2-phenyl-3H-pyrazol-3-onato- $\kappa$ O3]bis[tris(pentafluorophenyl)phosphine oxide- $\kappa$ O]- (9CI) (CA INDEX NAME)



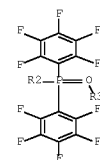
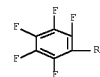
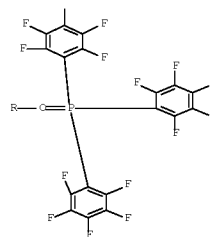
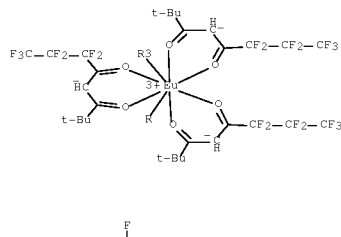
PAGE 1-A

PAGE 2-A

PAGE 3-A



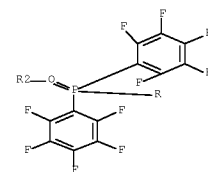
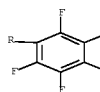
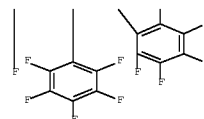
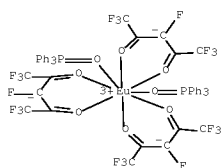
RN 569642-12-2 CAPLUS  
 CN Europium, tris(6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5-octanedionato-  
 KO,KO')bis[tris(pentafluorophenyl)phosphine oxide-KO]-  
 (9CI) (CA INDEX NAME)



IT 455076-63-80

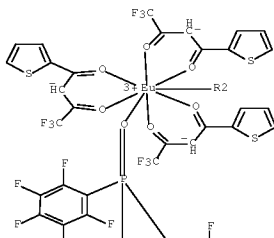
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic  
 preparation); PREP (Preparation); USES (Uses)  
 (preparation and luminescence as photoactive lanthanide complex for use in  
 electronic devices)

RN 431076-61-8 CAPLUS  
 CN Europium, tris(1,1,1,3,5,5,5-heptafluoro-2,4-pentanedionato-  
 KO,KO')bis(triphenylphosphine oxide-KO)- (9CI) (CA  
 INDEX NAME)



IT 569642-16-80  
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (preparation as photoactive lanthanide complex for use in electronic  
 devices)

RN 569642-16-6 CAPLUS  
 CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-  
 KO,KO']bis[tris(pentafluorophenyl)phosphine oxide-KO]-  
 (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD  
 (3 CITINGS)  
 REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 50 OF 82 CAPLUS COPYRIGHT 2010 ACS on SIN  
 ACCESSION NUMBER: 2003:382257 CAPLUS Full-test  
 DOCUMENT NUMBER: 139:108356  
 TITLE: Efficient Electroluminescence from a New  
 Terbium Complex  
 AUTHOR(S): Xin, Hao; Li, Fu You; Shi, Mei; Bian, Zu Qiang; Huang,  
 Chun Hui

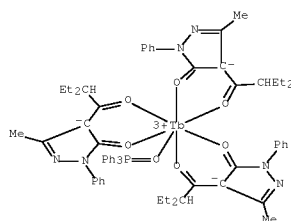
CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
SOURCE: Journal of the American Chemical Society (2003), 125(24), 7166-7167  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Although lanthanide complexes have distinct advantages for use as light-emitting materials, such as sharp emission bands and 100% quantum efficiency theor., their performance was far below what is expected. A new Tb complex was designed and synthesized. Devices using it as an emitter present satisfactory performance, with the highest brightness of 12,000 cd/m<sup>2</sup> and power efficiency of 11.3 lm/W, which is nearly 1 order of magnitude higher than what was reported previously. Comparison with analogous complexes indicated that this result originated from the Tb complex's well-balanced charge-transport properties.

IT 350306-43-GP  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(efficient electroluminescence from new terbium complex)

RN 560106-43-6 CAPLUS

CN Terbium, tris[4-[2-ethyl-1-(oxo-ko)butyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-ko3](triphenylphosphine oxide-ko)-, (TPS-7-3-12''3'2'3'2')- (CA INDEX NAME)



OS.CITING REF COUNT: 79 THERE ARE 79 CAPLUS RECORDS THAT CITE THIS

REFERENCE COUNT: 15 RECORD (79 CITINGS)  
THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 51 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:214732 CAPLUS Full-text

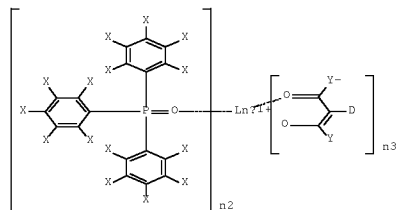
DOCUMENT NUMBER: 138:262447

TITLE: Rare earth metal complex and the optical functional material and the light-emitting device using the complex

INVENTOR(S): Hasegawa, Seiya; Yanagida, Shozo; Wada, Yuji; Shimada,

PATENT ASSIGNEE(S): Junichi; Kawakami, Yoichi; Fujita, Shigeo  
Kansai Technology Licensing Organization Co., Ltd.,  
Japa.  
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXJAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003081986	A	20030319	JP 2001-272547	20010907 <--
JP 3668966	B2	20050706		
WO 2003022857	A1	20030320	WO 2002-JP9073	20020905 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002330489	A1	20030324	AU 2002-330489	20020905 <--
PRIORITY APPLN. INFO.: JP 2001-272547 A 20010907				
WO 2002-JP9073 W 20020905				
OTHER SOURCE(S): MARPAT 138:262447				
GI				



AB The rare earth metal complex is that represented as I (Ln = rare earth metal; n1 = 2, 3; n2 = 1, 2; n3 = 1-4; X = H, D, halogen, C1-20 hydrocarbon group, OH, NO2, amino, sulfonyl, cyano, silyl, phosphonic acid group, diazo group, mercapto group; Y = C1-20 hydrocarbon group, OH, NO2, amino, sulfonyl, cyano, silyl, phosphonic acid, diazo group, mercapto group). The optical functional material is a transparent material supporting the rare earth metal. The

light-emitting device involves the transparent complex-supporting material and a light-emitting diode or semiconductor laser emitting excitation light corresponding to f-f transition of Ln<sup>3+</sup> or absorption of the ligand in the complex.

IT 791-28-6, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(for preparation of rare earth metal complex associated with light-emitting diode or semiconductor laser for electroluminescent device)

RN 791-28-6 CAPLUS

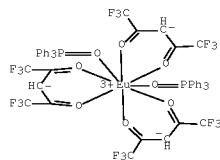
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



IT 111765-12-9  
RL: IMP (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(rare earth metal complex associated with light-emitting diode or semiconductor laser for electroluminescent device)

RN 111765-12-9 CAPLUS

CN Europium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-ko2,ko4)bis(triphenylphosphine oxide-ko)-, (SA-8-12''2122'2'2'')- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 52 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2002:931158 CAPLUS Full-text

DOCUMENT NUMBER: 138:245212

TITLE: Growth and characterization of OLEDs with samarium complex as emitting and electron transporting layer

AUTHOR(S): Reyes, R.; Hering, E. N.; Cremona, M.; da Silva, C. F. B.; Brito, H. F.; Achete, C. A.

CORPORATE SOURCE: Departamento de Fisica, Pontificia Universidade

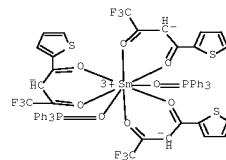
Catolica do Rio de Janeiro, Rio de Janeiro, CEP 22453-970, Brazil  
SOURCE: Thin Solid Films (2002), 420-421, 23-29  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The growth and the characterization of new orange emitting triple-layer electroluminescent organic devices using vacuum deposited trivalent Sm complex [Sm(TTA)3(TPPO)2] as emission layer is described. The electroluminescence (EL) spectra of the devices show narrow bands arising from the 5G5/2 6HJ transitions (J = 5/2, 7/2 and 9/2) of the Sm<sup>3+</sup> ion with the hypersensitive 5G5/2 6HJ transitions as the prominent group. The hole transporting layer (HTL) was obtained using a thin film of 1-(3-methylphenyl)-1,2,3,4-tetrahydroquinoline-6-carboxyaldehyde-1,1'-diphenylhydrazine (MTCD), while the tris(8-hydroxyquinoline Al) (Alq3) was used as electron transport layer (ETL). Also, to use the Sm complex, two different kinds of OLEDs were prepared: the 1st one with a typical three layers architecture, MTCD/[Sm(TTA)3(TPPO)2]/Alq3, while the 2nd one was a bi-layer device with an MTCD/[Sm(TTA)3(TPPO)2] design without the Alq3 ETL layer. In the last case, the EL emission was also observed, which indicates that the [Sm(TTA)3(TPPO)2] complex may be used as an electron transporting layer also.

IT 492440-34-3  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(growth and characterization of OLEDs with samarium complex as emitting and electron transporting layer)

RN 492440-34-3 CAPLUS

CN Samarium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-ko,ko']bis(triphenylphosphine oxide-ko)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)  
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 53 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2002:831834 CAPLUS Full-text

DOCUMENT NUMBER: 137:343709

TITLE: Pyromethene metal complexes and light emitting device composition and light emitting devices using the same

INVENTOR(S): Murase, Seichiro; Tominaga, Tsuyoshi; Kohama, Akira

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Eur. Pat. Appl., 54 pp.  
CODEN: EPAXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

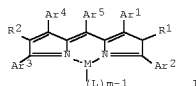
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1253151	A1	20021030	EP 2002-252947	20020425 <--
EP 1253151	B1	20050112		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

TW 565604	B	20031211	TW 2002-91107585	20020415 <--
JP 2003012676	A	20030115	JP 2002-117229	20020419 <--
JP 4000893	B2	20071031		
US 20030082406	A1	20030501	US 2002-126652	20020422 <--
US 6805978	B2	20041019		
SG 121713	A1	20060526	SG 2002-2483	20020424 <--
KR 856981	B1	20080904	KR 2002-22535	20020424 <--
CN 1390841	A	20030115	CN 2002-124569	20020425 <--
AT 286903	T	20050115	AT 2002-252947	20020425 <--
CN 1690162	A	20051102	CN 2005-10071206	20020425 <--
CN 1308414	C	20070404		
CN 101393970	A	20090325	CN 2008-10166054	20020425 <--
JP 2003086379	A	20030320	JP 2002-150546	20020524 <--
JP 4061969	B2	20080319		
JP 2008064099	A	20080708	KR 2008-50903	20080530
KR 856990	B1	20080904		

PRIORITY APPLN. INFO.: JP 2001-127311 A 20010425  
JP 2001-158325 A 20010528  
KR 2002-22535 A3 20020424  
CN 2002-124569 A3 20020425

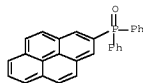
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 137:343709  
GI



AB Pyromethene metal complexes are described by the general formula I (R1, R2, and each L = independently selected H, alkyl, cycloalkyl, aralkyl, alkenyl, cycloalkenyl, alkynyl, hydroxyl, mercapto, alkoxy, alkylthio, aryl ether, aryl thioether, aryl, heterocyclic, halogen, haloalkane, haloalkene, haloalkyne, cyano, aldehyde, carbonyl, carboxyl, ester, carbamoyl, amino, nitro, silyl, siloxanyl, and fused aromatic and alicyclic rings formed from Ar1-4 and L; M = a metal having a valence of m selected from boron, beryllium, magnesium, chromium, iron, nickel, copper, zinc, and platinum; and Ar1-5 = independently selected optionally substituted aryl groups with the proviso that any of Ar1-

4, together with an adjacent group selected from R1, R2 and the or each group L may form a fused aromatic or alicyclic ring). Light-emitting devices comprising 21 of a diketopyrrolo[3,4-c]pyrrole derivative and an organic fluorescent material having a fluorescent peak wavelength in the range 580-720 nm; and a light-emitting device composition containing I are also described.

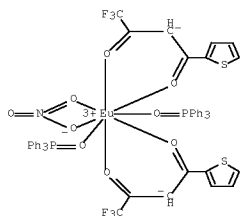
IT 474067-50-0  
RL: DEV (Device component use); USES (Uses)  
(pyromethene metal complexes and light-emitting device compns. and the devices)  
RN 474067-50-0 CAPLUS  
CN Phosphine oxide, diphenyl-2-pyrenyl- (CA INDEX NAME)



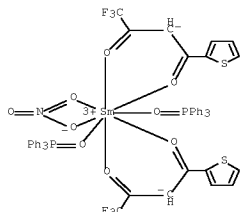
OS.CITING REF COUNT: 19 THERE ARE 19 CAPLUS RECORDS THAT CITE THIS RECORD (24 CITINGS)  
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 54 OF 82 CAPLUS COPYRIGHT 2010 ACS on SIN  
ACCESSION NUMBER: 2002:786121 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:128342  
TITLE: Synthesis, characterization and luminescent properties of a europium (III) complex  
AUTHOR(S): Fu, Y. J.; Wong, T. K. S.; Yan, Y. K.; Wang, G. M.; Hu, X.  
CORPORATE SOURCE: School of Electrical and Electronic Engineering, Division of Microelectronics, Nanyang Technological University, Singapore, 639798, Singapore  
SOURCE: Thin Solid Films (2002), 417(1-2), 78-84  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Rare earth chelates of Sm(III) (complex 1) and Eu(III) (complex 2) with  $\beta$ -diketone ligand (2-thienyl)trifluoroacetylacetone (HTTA) and OEPH3 (TFPO) were prepared from their nitrate salts. Single crystal x-ray diffraction, FTIR and thermo-gravimetric analyses were used in the characterization. Both photoluminescence (PL) and electroluminescence (EL) properties of complex 2 were studied. In both crystalline powder and film states, the PL spectra exhibit emission peaks typical of Eu (III) with the most intense at 615 nm. Single layer EL devices based on complex 2 fabricated by evaporation show only weak emissions, while double layer devices with a hole transporting layer of N,N-bis(3-methylphenyl)-N,N'-diphenyl-benzidine (TPD) exhibit enhanced intensity indicating better carrier injection balance.  
IT 85096-18-0 132935-63-8  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(synthesis, characterization and luminescent properties of a europium (III) complex)  
RN 85096-18-0 CAPLUS

CN Europium, (nitrate-KO,KO')bis[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 132935-63-8 CAPLUS  
CN Samarium, (nitrate-KO,KO')bis[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 55 OF 82 CAPLUS COPYRIGHT 2010 ACS on SIN  
ACCESSION NUMBER: 2002:740901 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 138:30787  
TITLE: Rare-earth organic electroluminescent white light emitting material

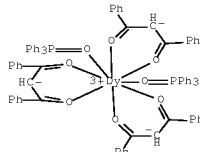
INVENTOR(S): Li, Wenlian; Hong, Zhenyi; Zhao, Dan; Li, Ruigang; Liang, Chunjun; Fan, Di  
PATENT ASSIGNEE(S): Changchun Institute of Optics & Fine Mechanics and Physics, Chinese Academy of Sciences, Peop. Rep. China  
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1329128	A	20020102	CN 2000-117790	20000620 <--

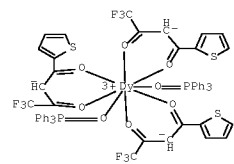
PRIORITY APPLN. INFO.: CN 2000-117790 20000620

AB Electroluminescent materials are described by the general formulas DyM3N, DyM3, and DyMN2 (M = organic fatty dicarboxylic acid or aromatic carboxylic acid; and N = neutral organic ligand). Electroluminescent devices using the materials in conjunction with polyvinylcarbazole, diamine derivs., TPD or NPB; and PMMA as dispersing matrix are also described.

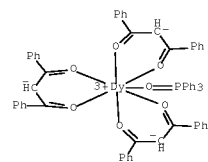
IT 477968-29-9 477968-31-3 477968-38-0  
RL: DEV (Device component use); USES (Uses)  
(dysprosium complex electroluminescent materials and devices using them)  
RN 477968-29-9 CAPLUS  
CN Dysprosium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-propanedionato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 477968-31-3 CAPLUS  
CN Dysprosium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)

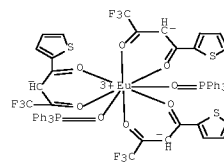


RN 477968-38-0 CAPLUS  
CN Dysprosium, tris(1,3-diphenyl-1,3-propanedionato-  
KO,KO')(triphenylphosphine oxide-KO)- (9CI) (CA INDEX  
NAME)



L11 ANSWER 56 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:632126 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 137:301819  
TITLE: Growth and characterization of OLEDs with  
europium complex as emission layer  
AUTHOR(S): Reyes, R. J. da Silva, C. F. B.; de Brito, H. F.;  
Cremona, M.  
CORPORATE SOURCE: Departamento de Física, Pontificia Universidade  
Catolica do Rio de Janeiro, PUC-Rio, Brazil  
SOURCE: Brazilian Journal of Physics (2002), 32(2B),  
535-539  
CODEN: BJPHE6; ISSN: 0103-9733  
PUBLISHER: Sociedade Brasileira de Física  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The growth and the characterization of red emitting triple-layer  
electroluminescent organic devices using vacuum deposited (Eu(TTA)3(TPPO)2) Eu  
complex as emitting layer are described. The observed electroluminescence  
(EL) is characteristic of the Eu3+ emission. In this device the hole transport  
layer is obtained using a thin film of 1-(3-methylphenyl)-1,2,3,4-  
tetrahydroquinoline-6-carboxyaldehyde-1,1'- diphenylhydrazone (MTCO), while

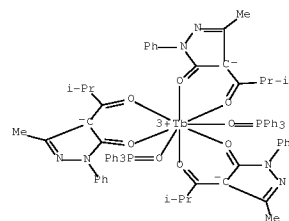
the tris(8-hydroxyquinolino)aluminum (Alq3) is used as electron transport  
layer (ETL).  
IT 207351-75-5  
RL: DEV (Device component use); PEP (Physical, engineering or chemical  
process); PRE (Properties); FYP (Physical process); PROC (Process); USES  
(Uses)  
(growth and characterization of organic LEDs with emission layer of)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-  
KO1,KO3]bis(triphenylphosphine oxide-KO)- (CA INDEX  
NAME)



OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD  
(8 CITINGS)  
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 57 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:258760 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 137:12523  
TITLE: Blue organic electroluminescent devices based on a  
distyrylarylene derivative as emitting layer and a  
terbium complex as electron-transporting layer  
AUTHOR(S): Huang, Ling; Tian, He; Li, Fu-You; Gao, De-Qing;  
Huang, Yan-Yi; Huang, Chun-Hui  
CORPORATE SOURCE: Peking University, State Key Laboratory of Rare Earth  
Materials Chemistry and Applications, Beijing, 100871,  
Peop. Rep. China  
SOURCE: Journal of Luminescence (2003), 97(1), 55-59  
CODEN: JLUOAS; ISSN: 0022-2313  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB With a blue distyrylarylene derivative, 4,4'-bis(2,2-di(2-  
methoxyphenyl)ethenyl)-1,1'-biphenyl as emitting material, double-layer and  
triple-layer electroluminescent (EL) devices were fabricated. For the device  
using tris(1-phenyl-3-Me-4-isobutyl-5-pyrazolono)bis(triphenylphosphine  
oxide)terbium (Tb(EMIP)3(TPPO)2) as the electron-transporting layer, blue EL  
emission with a maximum luminance of 253 cd/m2 was achieved at 19 V. The  
difference of Tb(EMIP)3(TPPO)2 and tris(8-hydroxyquinolino)aluminum as the  
electron-transporting materials in these devices were compared and discussed.  
IT 207351-75-5  
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PRE (Properties); PROC (Process); USES (Uses)  
(blue electroluminescent devices based on distyrylarylene derivative as  
emitting layer and electron-transporting layer of)  
RN 207351-75-5 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-KO)propyl]-2-  
phenyl-3H-pyrazol-3-onato-KO3]bis(triphenylphosphine  
oxide-KO)- (CA INDEX NAME)



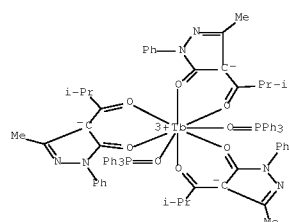
OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD  
(7 CITINGS)  
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 58 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:158265 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 136:192072  
TITLE: method of forming multiple layer structure of  
alternating layers of organic and inorg. materials and  
devices comprising same  
INVENTOR(S): Kwok, Hoi-Sing; Wang, Li-Duo  
PATENT ASSIGNEE(S): Hong Kong  
SOURCE: U.S. Pat. Appl. Publ., 11 pp., Cont.-in-part of U.S.  
Ser. No. 420,792.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20020024297	A1	20020228	US 2001-908814	20010720 <--
PRIORITY APPLN. INFO.:			US 1999-420792	A2 19991019

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
AB Pulsed laser deposition or thermal evaporation is used to deposit organic thin  
films, in particular of materials that are of interest to display  
applications. Luminescent films such as tris-(8-hydroxyquinoline)aluminum  
(Alq3) can be deposited without degradation of their luminescent properties.

Alternating layers of different materials, one of which is an organic compound  
and another of which is an inorg. material, can be deposited using this  
method. High luminescent efficiency multi-layer films can be obtained.  
IT 207351-75-5, Tris(1-phenyl-3-methyl-4-isobutyl-5-pyrazolono)-  
bis(triphenylphosphine oxide) terbium  
RL: DEV (Device component use); PEP (Physical, engineering or chemical  
process); PROC (Process); USES (Uses)  
(method of forming multiple layer structure of alternating layers of  
organic and inorg. materials and devices comprising same)  
RN 207351-75-5 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-KO)propyl]-2-  
phenyl-3H-pyrazol-3-onato-KO3]bis(triphenylphosphine  
oxide-KO)- (CA INDEX NAME)



L11 ANSWER 59 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:72465 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 136:126337  
TITLE: Patterned organic light emitting  
device  
INVENTOR(S): Latham, Steven George; Halim, Mounir  
PATENT ASSIGNEE(S): Opsy Limited, UK  
SOURCE: FCT Int. Appl., 21 pp.  
CODEN: FIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002007235	A1	20020124	WO 2001-GB3190	20010712 <--
W:	AE, AG, AL, AM, AT, AU, A2, BA, BB, BG, BR, BY, B2, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GR, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW			

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AI, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GN, GW, ML, MR, NE, SN, TD, TG

GB 2364824 A 20020206 GB 2000-17297 20000715 <--  
GB 2384115 A 20030716 GB 2003-871 20010712 <--  
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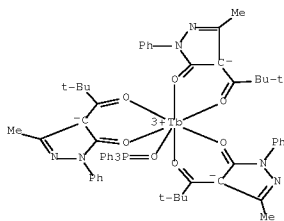
PRIORITY APPLN. INFO.: GB 2000-17297 A 20000715  
WO 2001-GB3190 W 20010712

AB Methods of making electroluminescent devices, especially organic electroluminescent devices, are described which entail forming the electroluminescent device; encapsulating the device in an inert atmosphere to form a hermetically sealed package; and after the encapsulation step, exposing the device to UV light to reduce the emissivity of the device. The device can be exposed to UV light through a mask which is the neg. of the desired pattern for the electroluminescent device. After exposure to the UV light, the device can be coated with an UV barrier layer, or placed in a structure which shields it from UV barrier layer, or placed in a structure which shields it from UV light thus preventing further degradation of the electroluminescent properties.

IT 573724-64-4  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(light-emitting device fabrication using UV irradiation to produce patterns)

RN 333724-64-4 CAPLUS

CN Terbium, tris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 60 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2002:8820 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 136:207054  
TITLE: Hole blocking effect on the organic electroluminescent device using europium complex

AUTHOR(S): Kim, Jun Ho; Lee, Sang Phil; Kim, Jung Soo; Kim, Young Kwan; Lee, Seung Hee

CORPORATE SOURCE: Department of Electrical & Control Engineering, Hong-Ik University, Seoul, 121-791, S. Korea

SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2001), 371, 455-458  
CODEN: MCLCE9; ISSN: 1058-725X

PUBLISHER: Gordon & Breach Science Publishers

DOCUMENT TYPE: Journal

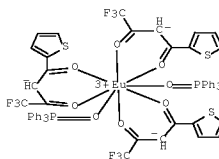
LANGUAGE: English

AB The Eu complex, Eu(TTA)3(TPPO) [tris-(4,4,4-trifluoro-1-(2-thienyl)-butane-1,3-dionate)-triphenyl phosphine oxide europium(III)] is known as the sharp red electroluminescent organic material at the wavelength of 615 nm, but its luminance is quite low. In this study, the complex's elec. and optical characteristics were improved using the hole blocking layer (HBL), BCP [2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline]. The device with a structure of ITO/TPD/Eu(TTA)3(TPPO)/BCP/Alq3/Li:Al/Al was fabricated and its photoluminescent and electroluminescent characteristics were investigated. It was found that the BCP layer with a thickness of 6 nm can block the holes from Eu complex efficiently to improve the EL characteristics of the device. Details on the elec. properties of these structures are also discussed.

IT 12121-29-8  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(hole blocking effect on organic electroluminescent device using europium complex as emitter and bathocuproine as hole-blocking layer)

RN 12121-29-8 CAPLUS

CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-KO1,KO3]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 61 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2001:644388 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:378319  
TITLE: Efficient single layer organic light emitting diodes based on a terbium pyrazolone complex

AUTHOR(S): Moon, D. G.; Salata, O. V.; Etchells, M.; Dobson, P.

CORPORATE SOURCE: J.; Christou, V.  
Department of Materials, University of Oxford, Oxford, Yarnton, OX5 1PF, UK

SOURCE: Synthetic Metals (2001), 123(2), 355-357  
CODEN: SYMEDI; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

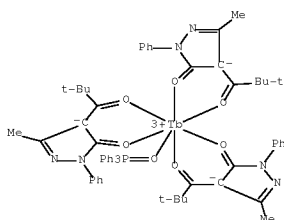
LANGUAGE: English

AB Single layer devices of an organolanthanide complex, Tb tris-(1-phenyl-3-methyl-4-(tertiarybutyl)pyrazol-5-one)triphenylphosphine oxide [(tb-FMP)3Tb(Ph3PO)], were made to study light emission and current transporting properties. Ca and Mg layers were used for the cathode contact. A higher c.d. at much lower voltages can be attained with a Ca cathode because of enhanced electron injection. The maximum brightness of a single layer device with a Ca cathode was 226 cd/m2 at 18 V and the best electroluminescence (EL) efficiency was 0.67 cd/A at 14 V and 70 cd/m2.

IT 573724-64-4  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(efficient single layer organic light emitting diodes based on terbium pyrazolone complex)

RN 333724-64-4 CAPLUS

CN Terbium, tris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS RECORD (22 CITINGS)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 62 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2001:643087 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 135:358266  
TITLE: Synthesis and properties of amorphous blue-light-emitting polymers with high glass-transition temperatures

AUTHOR(S): Deimede, V.; Kallitsis, J. K.; Pakula, T.

CORPORATE SOURCE: Department of Chemistry, University of Patras, Patras, GR-265 00, Greece

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2003), 39(18), 3168-3179  
CODEN: JPACED; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

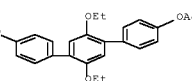
AB A series of soluble poly(arylene ether)s containing the phenylphosphine oxide moiety were synthesized by the polymerization of substituted oligophenylene diols with bis(fluorophenyl)phenylphosphine oxide. These amorphous polyethers had well-defined structures and showed blue photoluminescence combined with good thermal stability, especially when Ph or ethoxy side groups were used. The glass transition temps. increased when the size of the oligophenylene segment increased from three to five rings or when the length of the alkoxy substituents decreased. Polymers with glass transition temps. up to 270° were obtained. The absorption and photoluminescent spectra shifted to longer wavelengths with an increase in the oligophenylene block. A red shift was also observed on photoluminescent spectra in the transition from solution to the solid state.

IT 371786-65-4E 371786-65-5E 371786-71-5P  
371786-72-6P 371786-74-2E 371786-75-3E  
371786-76-4P 371786-77-5E 371786-78-6E  
371786-79-7P 371786-80-6P 371786-81-1E  
371786-82-2E 371786-83-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and properties of amorphous blue-light-emitting phenylphosphine oxide group-containing aromatic polyethers with high glass transition temps.)

RN 371786-68-4 CAPLUS

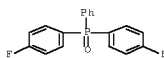
CN [1,1',4',1''-Terphenyl]-4,4''-diol, 2',5'-diethoxy-, diacetate, polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)



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CRN 54300-32-2

CMF C18 H13 F2 O P



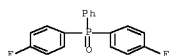
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CM 1

COCCCOc1cc(ccc1C2=CC=C(C=C2)C3=CC=C(C=C3)COC)COC

CM 2

CRN 54300-32-2  
CMF C18 H13 F2 O P

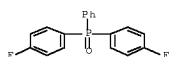


CM 1

CCOC(=O)c1ccc(cc1)-c2cc(ccc2COC(=O)c3ccc(cc3)C)C(C)C

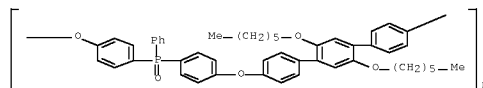
CM 2

CRN 54300-32-2  
CME C18 H13 F2 O P


$$\left[ \text{---O---C}_6\text{H}_4\text{---P(=O)(Ph)---C}_6\text{H}_4\text{---O---C}_6\text{H}_4\text{---C}_6\text{H}_3\text{(---CH}_2\text{---Me)}_2\text{---C}_6\text{H}_4\text{---} \right]_n$$

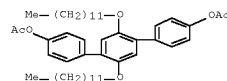
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CRN 371786-66-2



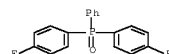
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CRN 371786-73-1  
CME C46 H66 O6

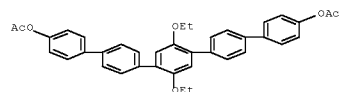


CM 2

CRN 54300-32-2  
CMF C18 H13 F2 O P

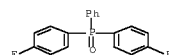

$$\left[ \text{---O---C}_6\text{H}_4\text{---P(=O)(Ph)---C}_6\text{H}_4\text{---O---C}_6\text{H}_3(\text{OMe})(\text{O---(CH}_2\text{)}_{11}\text{---Me)}\text{---C}_6\text{H}_4\text{---} \right]_n$$

CMF C38 H34 O6



CM 2

CRN 54300-32-2  
CMF C18 H13 F2 O P

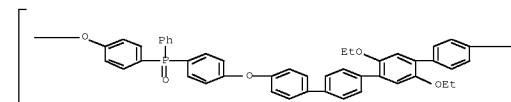


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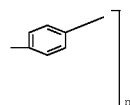
RN      371786-79-7  CAPLUS
CN      Poly[oxy-1,4-phenylene(phosphorylphosphinylidene)-1,4-phenyleneoxy(2'',5''-
        diethoxy[1,1':4',1'':4'',1''':4''',1''''-quinquephenyl]-4,4''''-diyl)]
        (9CI) (CA INDEX NAME)

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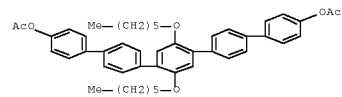
PAGE 1-A



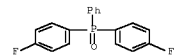
PAGE 1-B



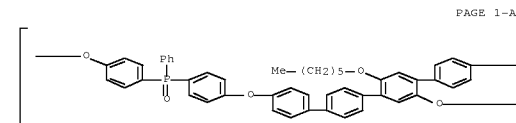
RN 371786-80-0 CAPLUS  
CN [1,1':4',1''':4'',1''':4''',1''':4''''-Quinquephenyl]-4,4''''-diol,  
2''',5''-bis(hexyloxy)-, diacetate, polymer with  
bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)  
CM 1  
CRN 211692-92-1  
CMF C46 H50 O6



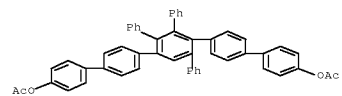
CM 2  
CRN 54300-32-2  
CMF C18 H13 F2 O F



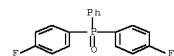
RN 371786-81-1 CAPLUS  
CN Poly[oxy-1,4-phenylene(phenylphosphinylidene)-1,4-phenyleneoxy[2'',5''-bis(hexyloxy)[1,1':4',1''':4'',1''':4''',1''':4''''-quinquephenyl]-4,4''''-diyl]] (9CI) (CA INDEX NAME)



PAGE 1-A



CM 2  
CRN 54300-32-2  
CMF C18 H13 F2 O F

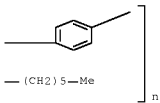


OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD  
(6 CITINGS)  
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 63 OF 82 CAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 2001:598107 CAPLUS Full-text  
DOCUMENT NUMBER: 135:187491  
TITLE: Dendrimers  
INVENTOR(S): Burn, Paul Leslie; Samuel, Ifor David William; Lupton,  
John Mark; Beavington, Richard  
PATENT ASSIGNEE(S): Isis Innovation Limited, UK  
SOURCE: PCT Int. Appl., 66 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

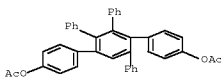
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001059030	A1	20010816	WO 2001-GB522	20010209 <--
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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, T2, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1254196	A1	20021106	EP 2001-904124	20010209 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PAGE 1-B

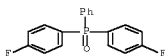


RN 371786-82-2 CAPLUS  
CN [1,1':4',1''-Terphenyl]-4,4''-diol, 2',3',5'-triphenyl-, diacetate,  
polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

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CRN 155658-38-1  
CMF C40 H30 O4



CM 2  
CRN 54300-32-2  
CMF C18 H13 F2 O F

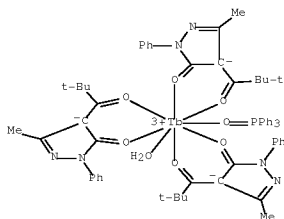


RN 371786-83-3 CAPLUS  
CN [1,1':4',1''':4'',1''':4''',1''':4''''-Quinquephenyl]-4,4''''-diol,  
2''',3''',5''-triphenyl-, diacetate, polymer with  
bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

CM 1  
CRN 155658-39-2  
CMF C52 H38 O4

JP 2003522202	T	20030722	JP 2001-558170	20010209 <--
US 20030134147	A1	20030717	US 2002-203448	20021113 <--
US 7083862	B2	20060801		
US 20060252963	A1	20061109	US 2006-438570	20060522
US 7276299	B2	20071002		
US 20080004471	A1	20080103	US 2007-852447	20070910
US 7682708	B2	20100323		
PRIORITY APPLN. INFO.:				
OTHER SOURCE(S):	MARPAT	135:187491		
AB	A compound of formula (I), where x is 3, 2 or 1, yr is 0 or 1, n1 and n2, which may be the same or different, are 0 or 1 to 3, X represents a divalent mono- or poly-aromatic and/or heteroarom. moiety, the or each Y, which may be the same or different if x is 1, represents hydrogen or an optionally substituted hydrocarbon group, Z represents an aromatic group, or an inherently at least partly conjugated dendritic mol. structure comprising one or more aromatic and/or heteroarom. groups and, optionally, alkenylene groups, connected to each other either directly or via a carbon atom of an alkenylene group, if present, to a ring carbon atom of a (hetero) aromatic group to which more than one at least partly conjugated dendritic chain is attached, said mol. structure being connected to the remainder of the mol. via a ring carbon atom, one or more of the (hetero) aromatic rings of the dendrimers optionally being substituted, Z and/or the remainder of the mol., excluding any groups Y, being luminescent, with the proviso that when Z represents an aromatic group y must be 1. Dendrimers are described by the general formula (Y)3-xN(Ar(HC:CH)n-Xy-(HC:CH)m-2)x (Ar= 1,4-phenylene; x = 1, 2, or 3; yr = 0 or 1; n, m = 0-3 and are independently selected; X = a divalent mono- or poly-aromatic and/or heteroarom. moiety; the or each Y, which may be the same or different if x = 1, = H or an (un)substituted hydrocarbon group; and Z = an aromatic group, or an inherently at least partly conjugated dendritic mol. structure comprising 2l aromatic and/or heteroarom. groups and, optionally, alkenylene groups, connected to each other either directly or via a carbon atom of an alkenylene group, if present, to a ring carbon atom of a (hetero)aromatic group to which 2l at least partly conjugated dendritic chain is attached, the mol. structure being connected to the remainder of the mol. via a ring carbon atom, 2l of the (hetero)aromatic rings of the dendrimers optionally being substituted, Z and/or the remainder of the mol., excluding any groups Y, being luminescent, with the proviso that when Z represents an aromatic group y must be 1). Methods for preg. the compds. entailing reacting aldehydes with appropriate Z group-containing compds are also described.			
IT	135:187491-49-8 RL: DEV (Device component use); USES (Uses) (dendrimers and their production and electronic devices using them)			
RN	315181-49-8 CAPLUS			
CN	Terbium, aquatris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)- (CA INDEX NAME)			

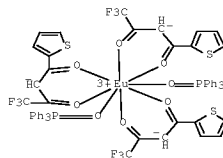




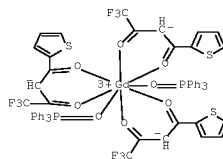
OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)  
 REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 64 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:473853 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 135:187128  
 TITLE: Phosphorescent emission from organic electroluminescent device  
 AUTHOR(S): Wu, Zhefu; Zhang, Xianmin; Sun, Runguang; Li, Wenlian; Chen, Kangsheng  
 CORPORATE SOURCE: Department of Information and Electronic Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China  
 SOURCE: Guangxue Xuebao (2001), 21(5), 600-604  
 CODEN: GUXUDC; ISSN: 0253-2239  
 PUBLISHER: Kexue Chubanshe  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese  
 AB A novel organic electroluminescent device with EuGd complex (Eu0.1Gd0.9)(TTA)(TPPO)2 as an emitter was developed. The characteristics of this device were described and both fluorescence and phosphorescence were observed. This phenomenon is discussed in terms of yields of phosphorescence from the triplet excited state of the Gd and Eu chelates because of the paramagnetic Gd3+ ion strong perturbation to the spin-orbit levels of the complex. Both the photoluminescent and electroluminescent efficiencies at different temp. from 77 K to 300 K were measured by integrating sphere technique. The results imply that the phosphorescent emission from the triplets excited state might be a new way to increase the theor. efficiency limit in electroluminescent devices.  
 IT 12121-29-8U, Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)-, solid solution with gadolinium analog 200292-99-5O, Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)-, solid solution with europium analog  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (phosphorescence from organic electroluminescent device containing)

RN 12121-29-8 CAPLUS  
 CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)- (CA INDEX NAME)

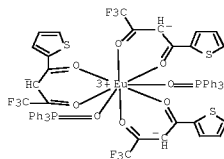


RN 200292-99-5 CAPLUS  
 CN Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)- (9CI) (CA INDEX NAME)

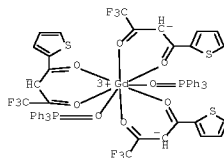


L11 ANSWER 65 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:218160 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 135:53432  
 TITLE: Energy transfer in organic electroluminescent devices  
 AUTHOR(S): Wu, Zhefu; Zhang, Xianmin; Sun, Runguang; Li, Wenlian; Chen, Kangsheng  
 CORPORATE SOURCE: Department of Information and Electronic Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China  
 SOURCE: Bandaoti Guangdian (2000), 21(3), 163-165  
 CODEN: BAGUES; ISSN: 1001-5868  
 PUBLISHER: Bandaoti Guangdian Bianjibu  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese

AB An electroluminescent device with complex of di[triphenylphosphine oxide-O-]tri[1-(2-thienyl)-4,4,4-trifluoro-1,3-butanedione-O,O-]europium(III)gadolinium(III) (TTA)3(TPPO)2 as light emitting material, 2-(4-biphenyl)-5-(4-t-butylphenyl)-1,3,4-oxadiazole as an electron transport material, and poly(N-vinylcarbazole) as a hole transport material was manufactured. The characteristics of the device and its electroluminescent spectra at 77-300K were studied. The observed phosphorescence was triplet state which caused by the strong disturbance of Gd3+ to the spin orbit of ligand electrons. The effective energy transfer between ligands and Eu3+ increased the electroluminescent fluorescence intensity of Eu3+.  
 IT 12121-29-8U, solid solution with Gd analog 200292-99-5O, solid solution with Eu analog  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (Energy transfer in organic electroluminescent devices)  
 RN 12121-29-8 CAPLUS  
 CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)- (CA INDEX NAME)



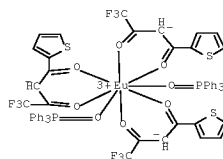
RN 200292-99-5 CAPLUS  
 CN Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)- (9CI) (CA INDEX NAME)



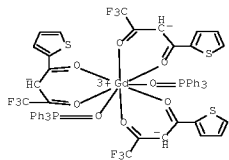
L11 ANSWER 66 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:188610 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 135:99140  
 TITLE: Phosphorescent emission from organic electroluminescent device  
 AUTHOR(S): Wu, Zhefu; Zhang, Xianmin; Sun, Runguang; Li, Wenlian; Chen, Kangsheng  
 CORPORATE SOURCE: Department of Information and Electronic Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China  
 SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2000), 4086(Thin Film Physics and Applications), 761-764  
 CODEN: PSISDG; ISSN: 0277-786X  
 PUBLISHER: SPIE-The International Society for Optical Engineering  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A novel organic electroluminescent device with EuGd complex (Eu0.1Gd0.9)(TTA)3(TPPO)2 as an emitter is presented, and the characteristics of the device were studied. The phosphorescence emission from the device are observed, which are discussed in terms of yields of phosphorescence from the triplet excited state of the Gd and Eu chelates due to the strong proturbation to the spin-orbit levels of the ligands by the paramagnetic Gd3+ ions. Both the photoluminescent and electroluminescent efficiencies at different temperature between 77 K and 300 K are measured by integrating sphere method. The authors' results show that the phosphorescent emission from the triplets excited state might be useful to improve the quantum efficiency of organic electroluminescent devices.  
 IT 12121-29-8U, solid solution with gadolinium analog 200292-99-5O, solid solution with europium analog  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (phosphorescent emission from organic electroluminescent device)

RN 12121-29-8 CAPLUS  
 CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)- (CA INDEX NAME)

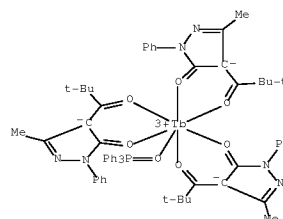


RN 200292-99-5 CAPLUS  
 CN Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato-κO,κO']bis(triphenylphosphine oxide-κO)- (9CI) (CA INDEX NAME)



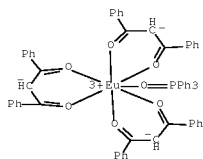
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 67 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:1606 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 134:287555  
 TITLE: High-efficiency organic electroluminescent devices using an organoterbium emitter  
 AUTHOR(S): Capecchi, Simone; Renault, Olivier; Moon, Dae-Gyu; Halim, Mounir; Etchells, Mark; Dobson, Peter J.; Salata, Oleg V.; Christou, Victor  
 CORPORATE SOURCE: Department of Engineering Science, University of Oxford, Oxford, OX1 3PJ, UK  
 SOURCE: Advanced Materials (Weinheim, Germany) (2000), 12(21), 1591-1594  
 CODEN: ADVMEW; ISSN: 0935-9648  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Device properties of a new organolanthanide phosphors (OLP) material for OLED devices are reported on. The preparation and characterization of green organic LEDs based on the new organolanthanide phosphors, [(Tb-PMP)3Tb(Ph3PO)] (PMP = tris-(1-phenyl-3-methyl-4- (trimethylacetate)pyrazol-5-one)), gave peak luminances of >2000 cd/m2 and efficiencies >2.6 lm/W at 25 cd/m2 and 14 V.  
 IT 333724-64-4  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (high-efficiency organic electroluminescent devices using organoterbium emitter)  
 RN 333724-64-4 CAPLUS  
 CN Terbium, tris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 78 THERE ARE 78 CAPLUS RECORDS THAT CITE THIS RECORD (78 CITINGS)  
 REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 68 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2001:417 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 134:272949  
 TITLE: Efficient red electroluminescence from devices having multilayers of a europium complex  
 AUTHOR(S): Hu, Wenping; Matsumura, Michio; Wang, Mingzhao; Jin, Linpei  
 CORPORATE SOURCE: Research Center for Photoenergetics of Organic Materials, Osaka University, Osaka, 560-8531, Japan  
 SOURCE: Applied Physics Letters (2000), 77(26), 4271-4273  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB To get red electroluminescence from a Eu complex with high efficiency, a hole-injection layer was inserted between the Eu-complex layer and an In-Sn-oxide electrode, and a hole-blocking layer was inserted between the Eu-complex and electron-transporting layers. To further improve the efficiency, devices having multiple-stacked Eu-complex (2.5 nm)/hole blocking (2.5 nm) units were fabricated. By stacking six units, the maximal luminance and emission efficiency of the red emission were increased to more than twice that from a device with a single Eu-complex layer.  
 IT 161973-16-6  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (efficient red electroluminescence from devices having multilayers of a europium complex)  
 RN 161973-16-6 CAPLUS  
 CN Europium, tris(1,3-diphenyl-1,3-propanedionato-KO1,KO3)(triphenylphosphine oxide-KO)-, (TPS-7-1-22'2'2'2)- (CA INDEX NAME)



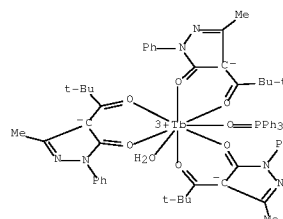
OS.CITING REF COUNT: 47 THERE ARE 47 CAPLUS RECORDS THAT CITE THIS RECORD (47 CITINGS)  
 REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 69 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2000:911592 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 134:78733  
 TITLE: Flat panel display with improved contrast  
 INVENTOR(S): Salata, Oleg Victorovich; Renault, Olivier; Christou, Victor  
 PATENT ASSIGNEE(S): Isis Innovation Limited, UK  
 SOURCE: PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000079616	A1	20001228	WO 2000-GB2377	20000619 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
PRIORITY APPLN. INFO.:			GB 1999-14372	A 19990618
			GB 1999-27116	A 19991116

AB The invention relates to a non-reflective electrode which can be used in a flat-panel display. A light emitting device is described which comprises a transparent substrate layer, a transparent electrode layer, a light emitting layer and a back electrode which is as a layer of C.  
 IT 315181-49-8  
 RL: DEV (Device component use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
 (flat panel display with improved contrast and containing light emitting layer of)  
 RN 315181-49-8 CAPLUS  
 CN Terbium, aquatris[4-[2,2-dimethyl-1-(oxo-KO)propyl]-2,4-dihydro-5-

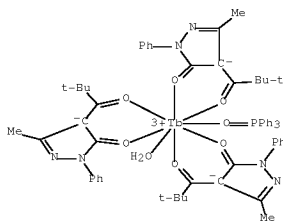
methyl-2-phenyl-3H-pyrazol-3-onato-KO3](triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)  
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 70 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2000:897745 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 134:287251  
 TITLE: A low reflectivity multilayer cathode for organic light-emitting diodes  
 AUTHOR(S): Renault, O.; Salata, O. V.; Etchells, M.; Dobson, P. J.; Christou, V.  
 CORPORATE SOURCE: Department of Engineering Science, University of Oxford, Oxford, OX1 3PJ, UK  
 SOURCE: Thin Solid Films (2000), 379(1,2), 195-198  
 CODEN: THSFAP; ISSN: 0040-6090  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A vacuum-deposited multilayer cathode for organic light-emitting diodes (OLEDs) with reduced reflectivity is described. The reduced reflectivity (58% at 550 nm) is due to the addition of a smooth and compact C film between a thin semi-transparent Mg layer and the top Al contact. For the following light-emitting organic structure deposited on In-Sn-oxide substrates: N,N'-diphenyl-N,N'-bis-(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine (TPD)/terbium tris(1-phenyl-3-methyl-4-(tert-butyl)pyrazol-5-one) OPPh3 [(Tb-PMP)3Tb(Ph3PO)]/3-(4-biphenyl)-4-phenyl-5-(4-tert-butylphenyl)-1,2,4-triazole (TAZ), the injection properties of such a multilayer cathode are presented and compared to those of Al/Mg and C/Al cathodes. Such a cathode shows promise for contrast improvements in OLEDs.  
 IT 315181-49-8  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (low reflectivity multilayer cathodes for organic light-emitting diodes and their properties)  
 RN 315181-49-8 CAPLUS

CN Terbium, aquatris[4-[2,2-dimethyl-1-(oxo- $\kappa$ O)propyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato- $\kappa$ O3](triphenylphosphine oxide- $\kappa$ O)- (CA INDEX NAME)

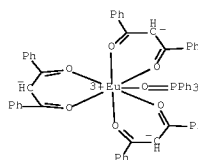


OS.CITING REF COUNT: 13 THERE ARE 13 CAPLUS RECORDS THAT CITE THIS RECORD (13 CITINGS)  
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 71 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:856834 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:123026  
TITLE: Red electroluminescence from an organic europium complex with a triphenylphosphine oxide ligand  
AUTHOR(S): Hu, Wenping; Matsumura, Michio; Wang, Mingzhao; Jin, Linpei  
CORPORATE SOURCE: Research Center for Photoenergetics of Organic Materials, Osaka University, Osaka, 560-8531, Japan  
SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (2000), 39(11), 6445-6448  
PUBLISHER: JAPANDE; ISSN: 0021-4922  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB An Eu-complex, Eu tris(dibenzoylmethide) (triphenylphosphine oxide), was newly synthesized and used as a light-emitting material in electroluminescent devices. The complex was easily deposited as transparent and homogeneous thin films by vacuum sublimation and was successfully applied to electroluminescent devices with a stacked structure of In-Sn-oxide (ITO)/hole transporting layer/Eu-complex layer/blocking layer/electron transporting layer/cathode. The devices with this structure gave off pure red light with luminance  $\leq 320$  cd/m<sup>2</sup>. The hole-blocking layer was essential to obtain pure red light from this Eu-complex. Without the hole-blocking layer, holes passed through the Eu-complex layer and entered into the electron transporting layer, leading to yellow emission.

IT 161973-18-56

RL: DEV (Device component use); FRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(synthesis and red electroluminescence of organic europium complex with triphenylphosphine oxide ligand)  
RN 161973-16-6 CAPLUS  
CN Europium, tris(1,3-diphenyl-1,3-propanedionato- $\kappa$ O1, $\kappa$ O3)(triphenylphosphine oxide- $\kappa$ O)-, (TFS-7-1-22'2'2''2'')- (CA INDEX NAME)



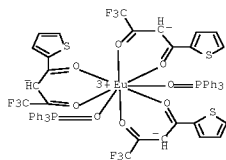
IT 791-28-6, Triphenylphosphine oxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of organic europium complex with triphenylphosphine oxide ligand using)  
RN 791-28-6 CAPLUS  
CN Phosphine oxide, triphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)  
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 72 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:764515 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 134:78148  
TITLE: Study on the optical and electrical properties of Eu complex in organic electroluminescent devices  
AUTHOR(S): Lee, Sang Pil; Kim, Jun Ho; Lee, Han Sung; Kim, Jung Soo; Kim, Young Kwan; Hoe, Hyun Sue; Lee, Seung Hee; Zyung, Tae Hyoung  
CORPORATE SOURCE: Department of Electrical & Control Engineering, Hong-Ik University, Seoul, 121-791, S. Korea  
SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2000), 349, 409-412

PUBLISHER: Gordon & Breach Science Publishers  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A novel Eu complex, Eu (TTA)3(TPPO) was synthesized and its photoluminescent and electroluminescent characteristics were studied with a device structure of ITO/TPD/Eu (TTA)3(TPPO)/Alq3/Al, where a sharp emission at the wavelength of 615 nm was observed  
IT 12121-38-9  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); FRP (Properties); PROC (Process); USES (Uses)  
(optical and elec. properties of Eu complex in organic electroluminescent devices)  
RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O1, $\kappa$ O3]bis(triphenylphosphine oxide- $\kappa$ O)- (CA INDEX NAME)

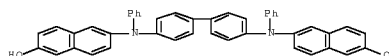


REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

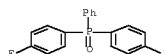
L11 ANSWER 73 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2000:521367 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 133:208256  
TITLE: Synthesis of poly(arylene ether)s containing hole-transport moieties from an isocyanate masked bisphenol  
AUTHOR(S): Lu, Jianping; Hlil, Antisar R.; Hay, Allan S.; Maindron, Tony; Dodelet, Jean-Fol; Lam, Jennifer; D'Iorio, Marie  
CORPORATE SOURCE: Department of Chemistry, McGill University, Montreal, QC, H3A 2K6, Can.  
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2000), 38(15), 2740-2748  
CODEN: JPACD; ISSN: 0887-624X  
PUBLISHER: John Wiley & Sons, Inc.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The design and synthesis of novel charge (hole- or electron-) transport materials have been the focus of much research in recent years because of their wide variety of applications. In this study, three high mol. weight poly(arylene ether)s, 6a-c, containing naphthyl-substituted benzidine moieties have been synthesized from carbamates derived from bisphenols. After masking

with Pr isocyanate, the carbamate is stable, can be readily purified by recrystn. from toluene, and can be polymerized directly with difluoro compds. under mild conditions. The resulting polymers possess high glass-transition temps., excellent thermal stability, and good film-forming properties. In comparison, the poly(arylene ether)s 6a'-c', synthesized from unprotected bisphenol, have lower mol. wts. and wider polydispersity and contain some brown impurities. Preliminary expts. show that both 6a and 6a' can function well as hole-transport materials in light-emitting diodes.  
IT 290815-97-3P 290815-95-2P 290815-96-6E  
RL: FRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis of poly(arylene ether)s containing hole-transport moieties from an isocyanate masked bisphenol)  
RN 290815-97-3 CAPLUS  
CN 2-Naphthalenol, 6,6'-[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

CM 1  
CRN 290815-93-9  
CMF C44 H32 N2 O2

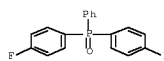


CM 2  
CRN 54300-32-2  
CMF C18 H13 F2 O F



RN 290815-98-4 CAPLUS  
CN Poly[oxy-1,4-phenylene(bisphenylphosphinylidene)]-1,4-phenyleneoxy-2,6-naphthalenediyl(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-2,6-naphthalenediyl (9CI) (CA INDEX NAME)

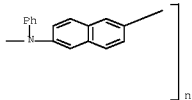
PAGE 1-A

CRN 54300-32-2  
CMF C18 H13 F2 O P

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

PAGE 1-B

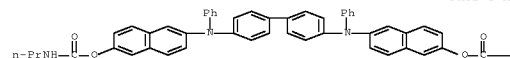


RN 290816-05-6 CAPLUS  
CN Carbanic acid, propyl-, [1,1'-biphenyl]-4,4'-diylbis[phenylimino]-6,2-naphthalenediyl ester, polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

CM 1

CRN 290815-94-0  
CMF C52 H46 N4 O4

PAGE 1-A



PAGE 1-B

NHPr-n

CM 2

L11 ANSWER 74 OF 82 CAPLUS COPYRIGHT 2010 ACS on SIN  
ACCESSION NUMBER: 2000:488976 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 133:273549  
TITLE: Electroplex emission from a layer of a mixture of a europium complex and tris(8-quinolinolato) aluminum  
AUTHOR(S): Cao, H.; Gao, X.; Huang, C.-H.  
CORPORATE SOURCE: Peking University and the University of Hong Kong Joint Laboratory on Rare Earth Materials and Bioinorganic Chemistry, State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
SOURCE: Applied Surface Science (2000), 161(3-4), 443-447  
CODEN: ASUSEE; ISSN: 0169-4332  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

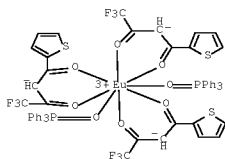
AB With tris( $\alpha$ -thenoyltrifluoroacetato)bis(triphenylphosphine oxide)europium (Eu(TTA)3(TPPO)2) as the light-emitting layer, N,N'-diphenyl-N,N'-di(m-tolyl)benzidine (TPD) as the hole transport layer, and tris(8-quinolinolato)aluminum (ALQ) as the electron transport layer, the triple-layer electroluminescent (EL) device emits red light characteristic of Eu<sup>3+</sup> emission. As the mixture of Eu(TTA)3(TPPO)2 and ALQ is coevapd. as the light-emitting layer to form a bilayer EL device, a new wide-banded emission peaked at .apprx.640 nm was obtained. This emission is neither from ALQ nor from the Eu complex. The luminescence (EL) of the film on SiO2 substrate evaporated from 1 mixed solid powder of Eu(TTA)3(TPPO)2 and ALQ is composed of distinct PL emissions of Eu(TTA)3(TPPO)2 and ALQ, denying an exciplex formation mechanism. It is impossible to form a host-guest system. Probably the EL emission peaked at .apprx.640 nm is from an electroplex route: a transition between the LUMO of Eu(TTA)3(TPPO)2 and the HOMO of ALQ.

IT 298199-64-15  
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process) (formation and electroplex emission from layer of)

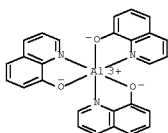
RN 298199-64-1 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O, $\kappa$ O']bis(triphenylphosphine oxide- $\kappa$ O)-, compd. with tris(8-quinolinolato- $\kappa$ N1, $\kappa$ O8)aluminum (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12121-29-8  
CMF C60 H42 Eu F9 O8 P2 S3  
CCI CCS

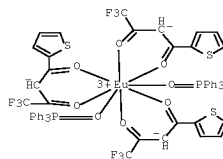


CM 2

CRN 2085-33-8  
CMF C27 H18 Al N3 O3  
CCI CCS

IT 20101-20-8P  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses) (preparation and electroplex emission from layer of mixture of aluminum quinolinolato complex and)

RN 12121-29-8 CAPLUS  
CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato- $\kappa$ O1, $\kappa$ O3]bis(triphenylphosphine oxide- $\kappa$ O)- (CA INDEX NAME)



OS.CITING REF COUNT: 28 THERE ARE 28 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

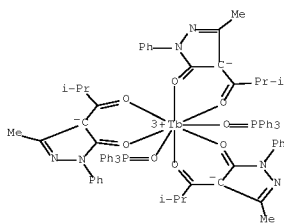
L11 ANSWER 75 OF 82 CAPLUS COPYRIGHT 2010 ACS on SIN  
ACCESSION NUMBER: 1999:116304 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 130:303448  
TITLE: Photoluminescence and electroluminescence of a series of terbium complexes  
AUTHOR(S): Gao, Xi-Cun; Cao, Hong; Huang, Chun-Hui; Unitani, Shigeo; Chen, Guang-Qiang; Jiang, Peng  
CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 10087, Peop. Rep. China  
SOURCE: Synthetic Metals (1999), 99(2), 127-132  
CODEN: SYMDEZ; ISSN: 0379-6779  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Photoluminescence and electroluminescence of Tb complexes based on 1-phenyl-3-methyl-4-R-5-pyrazolone were analyzed. The 1st absorption band of the pyrazolone derivative ligands gradually shifts toward the shorter wavelength region as the R changes from an electron acceptor to an electron donor. Correspondingly, the photoluminescence quantum efficiency of the Tb complexes increases. The neutral ligands also affect the photoluminescence and electroluminescence of the Tb complexes. A photochem. explanation for the influence of the R group and neutral ligand on the photoluminescence is proposed in relation to ligand-to-metal energy transfer. The electroluminescence of the Tb complexes having a neutral ligand comes from both the light emitting layer and the hole transport layer while the electroluminescence of the Tb complex without a neutral ligand is pure green coming solely from the light-emitting layer. It therefore demonstrates that the former have higher electron transport ability than the latter.

IT 207351-75-5 223262-04-3 223262-03-5 223262-04-2 223262-04-4 223262-07-5 223262-02-6 223262-09-7 223262-10-0  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses) (photoluminescence and electroluminescence of a series of ligands and their terbium complexes)

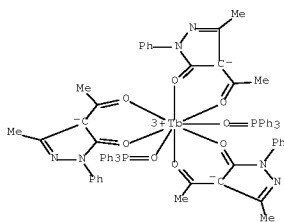
RN 207351-75-5 CAPLUS  
CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo- $\kappa$ O)propyl]-2-

phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine  
oxide-KO)- (CA INDEX NAME)



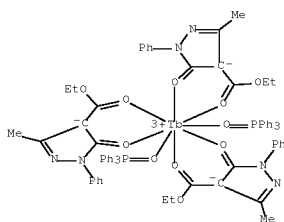
RN 223262-01-9 CAPLUS

CN Terbiu[m], tris[4-(acetyl-KO)-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



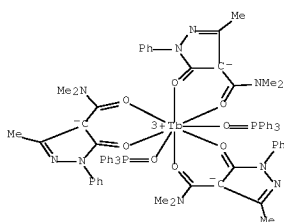
RN 223262-02-0 CAPLUS

CN Terbiu[m], tris[2,4-dihydro-5-methyl-4-[1-(oxo-KO)propyl]-2-phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



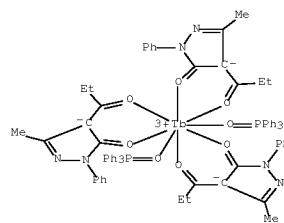
RN 223262-06-4 CAPLUS

CN Terbiu[m], tris[4,5-dihydro-N,N,3-trimethyl-5-(oxo-KO)-1-phenyl-1H-pyrazole-4-carboxamidato-K04]bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



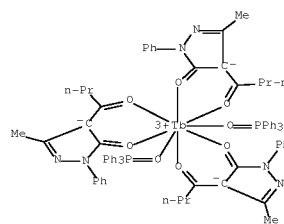
RN 223262-07-5 CAPLUS

CN Terbiu[m], tris[4,5-dihydro-3-methyl-5-(oxo-KO)-N,N,1-triphenyl-1H-pyrazole-4-carboxamidato-K04]bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



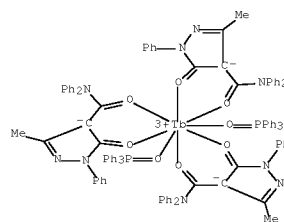
RN 223262-03-1 CAPLUS

CN Terbiu[m], tris[2,4-dihydro-5-methyl-4-[1-(oxo-KO)butyl]-2-phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



RN 223262-04-2 CAPLUS

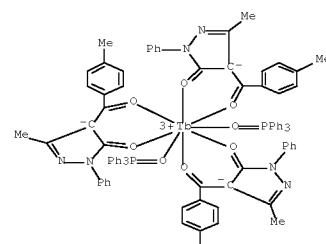
CN Terbiu[m], tris[ethyl 4,5-dihydro-3-methyl-5-(oxo-KO)-1-phenyl-1H-pyrazole-4-carboxylato-K04']bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 223262-08-6 CAPLUS

CN Terbiu[m], tris[2,4-dihydro-5-methyl-4-(4-methylbenzoyl-KO)-2-phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)

PAGE 1-A



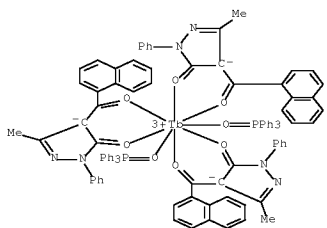
PAGE 2-A

He

RN 223262-09-7 CAPLUS

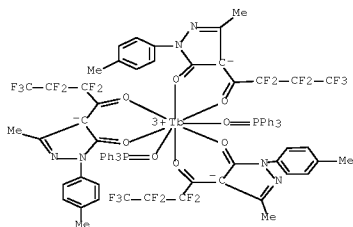
CN Terbiu[m], tris[2,4-dihydro-5-methyl-4-(1-naphthalenylcarbonyl-KO)-1-

phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (9CI) (CA INDEX NAME)



RN 223262-10-0 CAPLUS

CN Terbium, tris[4-[2,2,3,3,4,4,4-heptafluoro-1-(oxo-KO)butyl]-2,4-dihydro-5-methyl-2-(4-methylphenyl)-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 36 THERE ARE 36 CAPLUS RECORDS THAT CITE THIS RECORD (36 CITINGS)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

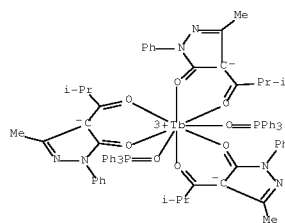
L11 ANSWER 76 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1998:766725 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 130:145586  
TITLE: Electroluminescence from both a

light-emitting layer and hole transport layer: spectral evidence for charge carrier tunneling injection  
Gao, Xi-Cun; Cao, Hong; Huang, Chun-Hui; Li, Biao-Guo; Ibrahim, K.; Liu, Feng-Qin; Umitani, Shigeo  
State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
Chemical Physics Letters (1998), 297(5,6), 530-536  
CODEN: CHELBC; ISSN: 0009-2614  
Elsevier Science B.V.  
Journal  
English  
AB The authors study the electroluminescence spectra of double- and triple-layered devices based on a rare-earth complex PTT, tris-(1-phenyl-3-Me-4-isobutyl-5-pyrazolone)-bis(tri-Ph phosphine oxide) Tb. In triple-layer devices, besides green electroluminescence from the light-emitting layer PTT, blue emission from the hole transport layer TPD (N,N'-bis (3-methylphenyl)-N,N'-diphenyl-benzidine) occurs at high elec. field strength (EFS) and its peak intensity increases with EFS. This indicates a charge carrier tunneling injection mechanism. At high EFS, the Fowler-Nordheim (FN) plot is close to linear, supporting the tunneling mechanism. The large barriers at the cathode and anode interfaces are responsible for this FN behavior. In double-layer devices where the 8-hydroxyquinoline-Al layer is absent, TPD emission dominates the electroluminescence, proving that PTT possesses high electron mobility.

IT 207351-75-5, Tris-(1-phenyl-3-methyl-4-isobutyl-5-pyrazolone)-bis(triphenyl phosphine oxide) terbium  
RL: DEV (Device component use); USES (Uses)  
(electroluminescence from both an LED light-emitting layer and hole transport layer with spectral evidence for charge carrier tunneling injection)

RN 207351-75-5 CAPLUS

CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-KO)propyl]-2-phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 77 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1998:242729 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 129:10142  
ORIGINAL REFERENCE NO.: 129:2123a, 2126a  
TITLE: Electroluminescence of a novel terbium complex

AUTHOR(S): Gao, X. C.; Cao, Hong; Huang, Chunhui; Li, Biaoquo; Umitani, Shigeo  
CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China  
SOURCE: Applied Physics Letters (1998), 72(18), 2217-2219  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English

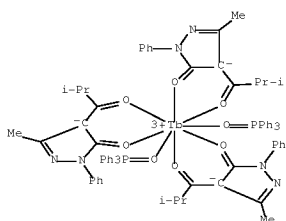
AB The authors describe efficient electroluminescence from a Tb complex, tris-(1-phenyl-3-Me-4 isobutyl-5-pyrazolone)-bis(tri-Ph phosphine oxide)Tb (PTT). The green-emitting material possesses much higher photoluminescence efficiency compared to the commonly used green light emitter, 8-hydroxyquinoline Al (ALQ). The rarely observed emission from the hole transport layer, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- benzidine (TPD) of the device ITO/TPD/PTT/AlQ/Al proves the PTT also is a good electricity transporting material. The ITO/TPD/PTT/ALQ/Al device shows luminance up to 920 cd/m2 at a drive voltage of 15 V and a luminous efficiency of 0.51 lm/W at a c.d. of 0.70 mA/cm2, which are up to now the highest among devices using rare-earth complex materials as emitters.

IT 207351-75-5

RL: DEV (Device component use); USES (Uses)  
(electroluminescence of a novel terbium complex)

RN 207351-75-5 CAPLUS

CN Terbium, tris[2,4-dihydro-5-methyl-4-[2-methyl-1-(oxo-KO)propyl]-2-phenyl-3H-pyrazol-3-onato-K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



OS.CITING REF COUNT: 71 THERE ARE 71 CAPLUS RECORDS THAT CITE THIS RECORD (71 CITINGS)  
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 78 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:14831 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 128:67944  
ORIGINAL REFERENCE NO.: 128:13175a, 13178a  
TITLE: Temperature-dependent electroluminescence from (Eu, Gd) coordination complexes

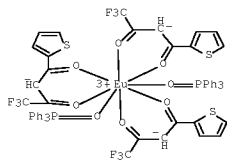
AUTHOR(S): Zhang, Xianmin; Sun, Runguang; Zheng, Qianbing; Kobayashi, Takayoshi; Li, Wenlian  
CORPORATE SOURCE: Graduate School of Science, Department of Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113, Japan  
SOURCE: Applied Physics Letters (1997), 71(18), 2596-2598  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Light emission from single-layered electroluminescent devices is described in which (Eu, Gd) coordination complexes, (Eu0.1Gd0.9)(TIA)3(TFPO)2, and electron transport material oxadiazole derivative, 2-(4-biphenyl)-5-(4-t-butylphenyl)-1,3,4-oxadiazole, are dispersed in a hole-transporting host polymer poly(N-vinylcarbazole) film. The color of the emitted electroluminescence changes smoothly from green-white to red with temperature varying from 77 to 300 K. This phenomenon is discussed in terms of temperature dependent yields of phosphorescence from the triplet state of the Gd and Eu chelates and the intermol. energy transfer from Gd-chelate to Eu-chelate cages.

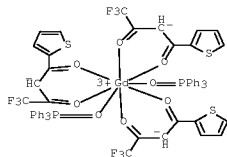
IT 12121-29-8D, solid solution with gadolinium analog  
200292-98-5D, Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-0,0']bis(triphenylphosphine oxide-O)-, solid solution with europium analog  
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(temperature-dependent electroluminescence from (europium, gadolinium) coordination complexes in LED with energy transfer, phosphorescence, and current-voltage curves)

RN 12121-29-8 CAPLUS

CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-K01,K03]bis(triphenylphosphine oxide-KO)- (CA INDEX NAME)



RN 200292-99-5 CAPLUS  
CN Gadolinium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,2-butanedionato-  
KO,KO']bis(triphenylphosphine oxide-KO)- (9CI) (CA  
INDEX NAME)



OS.CITING REF COUNT: 46 THERE ARE 46 CAPLUS RECORDS THAT CITE THIS  
RECORD (46 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

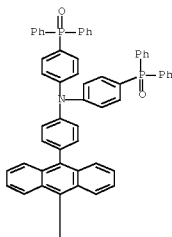
L11 ANSWER 79 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:519436 CAPLUS Full-text  
DOCUMENT NUMBER: 127:197527  
ORIGINAL REFERENCE NO.: 127:38163a,38166a  
TITLE: Light-emitting material for  
organo-electroluminescence device and  
organo-electroluminescence device for which  
the light-emitting material is  
adapted  
INVENTOR(S): Tamano, Michiko; Enokida, Toshio  
PATENT ASSIGNEE(S): Toyo Ink Manufacturing Co., Ltd., Japan  
SOURCE: Eur. Pat. Appl., 31 pp.  
CODEN: EFXDXW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 786926	A2	19970730	EP 1997-300551	19970129 <--
EP 786926	A3	19970806		
EP 786926	B1	20010822		
R: DE, FR, GB				
JP 09268283	A	19971014	JP 1997-7113	19970120 <--
JP 3511825	B2	20040329		
US 5811834	A	19980922	US 1997-788436	19970128 <--
DE 19758655	C2	20021107	DE 1997-19758655	19971126 <--
PRIORITY APPLN. INFO.:				
			JP 1996-12488	A 19960129
			JP 1996-314920	A 19961126
			JP 1997-3382	A 19970110
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
OTHER SOURCE(S): MARPAT 127:197527				
GI				

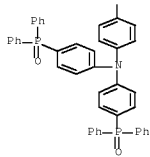
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Comps. for use in electroluminescent devices are described by the general  
formulas I and II (A-D are the same or different groups each = (un)substituted  
alkyl, (un)substituted monocyclic group, or (un)substituted fused polycyclic  
group, or A and B and/or C and D, together with the nitrogen atom to which  
they are attached, form a substituted or unsubstituted heterocyclic ring; R1-  
20 are independently selected from H, halogen atoms, (un)substituted alkyl,  
(un)substituted alkoxy, (un)substituted amino, (un)substituted monocyclic, or  
(un)substituted fused polycyclic groups; and X1-4 are independently selected  
form various linking groups). Television sets, light-emitting devices, copy  
machines, printers, liquid-crystal displays, displays, electrophotog.  
photoreceptors, photoelec. converters, solar cells, and image sensors  
containing electroluminescent devices employing the comps. are also  
described.  
IT 194296-56-5  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(Light-emitting materials based on  
bis(aminophenyl)anthracene derivs. for organic electroluminescent devices  
and the electroluminescent devices and devices using them)  
RN 194296-56-5 CAPLUS  
CN Benzenamine, 4,4'-(9,10-anthracenediyl)bis[N,N-bis[4-  
(diphenylphosphinyl)phenyl]- (CA INDEX NAME)

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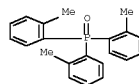
PAGE 2-A



OS.CITING REF COUNT: 21 THERE ARE 21 CAPLUS RECORDS THAT CITE THIS  
RECORD (43 CITINGS)

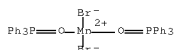
L11 ANSWER 80 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1995:592084 CAPLUS Full-text  
DOCUMENT NUMBER: 123:43477  
ORIGINAL REFERENCE NO.: 123:7686b,7687a  
TITLE: Synthesis and Characterization of a New Efficient  
Blue-Light-Emitting Copolymer  
AUTHOR(S): Hilberer, Alain; Brouwer, Hendrik-Jan; van der Scheer,  
Bart-Jan; Wildeman, Jurjen; Hadziioannou, Georges  
CORPORATE SOURCE: Department of Chemistry, University of Groningen,  
Groningen, 9747 AG, Neth.  
SOURCE: Macromolecules (1995), 28(13), 4525-9  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The authors present the synthesis, the characterization, and the use in light-  
emitting diodes of a new blue-light-emitting copolymer, poly[2,5,2',5'-  
tetraoctyl-p-terphenyl-4,4'-ylenevinylene-p-phenylenevinylene]. This  
copolymer, obtained by a poly-Heck reaction, has a fully unsatd. backbone  
consisting of regularly alternating terphenylene and phenylenebisvinylene  
blocks. The presence of well-defined chromophores, resulting from steric  
interactions in the polymer chain, gives rise to bright blue fluorescence,  
both in solution and in thin solid films. Blue-light-emitting diodes were  
fabricated by using this copolymer as an emitter layer.  
IT 8157-63-9P  
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)  
(synthesis and characterization of new efficient blue-light-  
emitting copolymer and its model compound)  
RN 6163-63-9 CAPLUS  
CN Phosphine oxide, tris(2-methylphenyl)- (CA INDEX NAME)

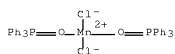


OS.CITING REF COUNT: 89 THERE ARE 89 CAPLUS RECORDS THAT CITE THIS  
RECORD (90 CITINGS)

L11 ANSWER 81 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1982:482188 CAPLUS Full-text  
DOCUMENT NUMBER: 97:82188  
ORIGINAL REFERENCE NO.: 97:13509a,13512a  
TITLE: Mechanoluminescence, electroluminescence and  
high-pressure photoluminescence of Mn(Ph3PO)2Br2  
Chandra, B. P.; Kaza, Balakrishna Rao  
AUTHOR(S): Phys. Dep., Gov. Sci. Coll., Raipur, 492 002, India  
CORPORATE SOURCE: Journal of Luminescence (1982), 27(1), 101-7  
SOURCE: CODEN: JLUMAS; ISSN: 0022-2313  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Mechanoluminescence, electroluminescence and high-pressure photoluminescence  
of Mn(Ph3PO)2Br2 crystals are reported. The mechanoluminescence spectra  
consist of mol. and N emissions. The spectra of the mol.-emission  
mechanoluminescence are similar to the photoluminescence and  
electroluminescence spectra. On the basis of the spectroscopy of  
mechanoluminescence, electroluminescence and high-pressure photoluminescence,  
the possible mechanism of the mechanoluminescence excitation is explored.  
IT 14552-77-3  
RL: PRP (Properties)  
(luminescence of)  
RN 14552-77-3 CAPLUS  
CN Manganese, dibromobis(triphenylphosphine oxide-KO)-, (T-4)- (CA  
INDEX NAME)

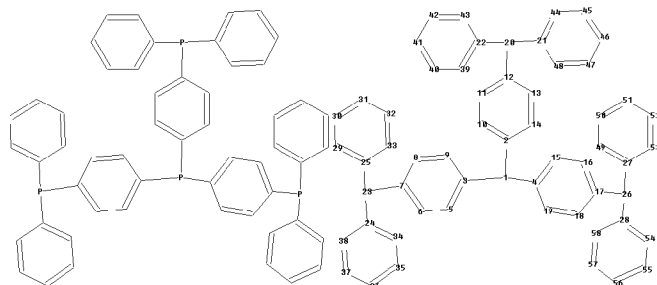


L11 ANSWER 82 OF 82 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1982:76868 CAPLUS Full-text  
DOCUMENT NUMBER: 96:76868  
ORIGINAL REFERENCE NO.: 96:12515a,12518a  
TITLE: Mechanoluminescence and electroluminescence of non-photoluminescent bis(triphenylphosphine oxide) manganese(II) chloride crystals  
AUTHOR(S): Chandra, B. P.; Jaiswal, A. K.; Chandraker, T. R.; Kaza, B. R.  
CORPORATE SOURCE: Dep. Phys., Gov. Sci. Coll., Raipur, 492 002, India  
SOURCE: Physica Status Solidi A: Applied Research (1981), 68(2), K207-K210  
CODEN: PSSABA; ISSN: 0031-8965  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The electroluminescence (EL) and mechanoluminescence (ML) of Mn(Pb3PO)2Cl2 are reported. The ML spectra of the crystals contains a series of bands between 300 and 420 nm which may be assigned to the (3nu -> 3ng) emission of mol N2; the peak at 355 nm of N2 ML is nearly 10 times less as compared to the peak at 520 nm of the Mn emission ML. The similarity between the ML and EL emission suggests 2 main possibilities of the mech. induced excitation of the luminescence centers: (1) the thermal population of the excited states at high pressure; and (2) the elec. excitation of the luminescence centers. The similarity indicates that the mechanism of excitation may involve the reaction of charged surfaces during fracture which may produce a sufficient elec. field for the excitation.  
IT 14494-86-1  
RL: FRP (Properties)  
(electroluminescence and mechanoluminescence of)  
RN 14494-86-1 CAPLUS  
CN Manganese, dichlorobis(triphenylphosphine oxide-KO)-, (T-4)- (CA INDEX NAME)



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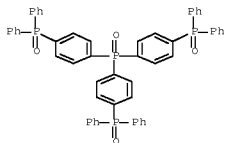
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L11 82 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L10 AND (PY<=2005 OR AT<=2005)  
D IBIB ABS HITSTR 1-  
=>  
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ring nodes :  
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 27  
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48  
49 50 51  
52 53 54 55 56 57 58  
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1-2 1-3 1-4 7-23 12-20 17-26 20-21 20-22 23-24 23-25 26-27 26-28  
ring bonds :  
2-10 2-14 3-5 3-9 4-15 4-19 5-6 6-7 7-8 8-9 10-11 11-12 12-13 13-14  
15-16 16-17 17-18 18-19 21-44 21-48 22-39 22-43 24-34 24-38 25-29 25-33  
27-49 27-53  
28-54 28-58 29-30 30-31 31-32 32-33 34-35 35-36 36-37 37-38 39-40 40-41  
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45-46 46-47 47-48 49-50 50-51 51-52 52-53 54-55 55-56 56-57 57-58  
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1-2 1-3 1-4 7-23 12-20 17-26 20-21 20-22 23-24 23-25 26-27 26-28  
normalized bonds :  
2-10 2-14 3-5 3-9 4-15 4-19 5-6 6-7 7-8 8-9 10-11 11-12 12-13 13-14  
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20:CLASS 21:Atom  
22:Atom 23:CLASS 24:Atom 25:Atom 26:CLASS 27:Atom 28:Atom 29:Atom 30:Atom  
31:Atom 32:Atom  
33:Atom 34:Atom 35:Atom 36:Atom 37:Atom 38:Atom 39:Atom 40:Atom 41:Atom  
42:Atom 43:Atom  
44:Atom 45:Atom 46:Atom 47:Atom 48:Atom 49:Atom 50:Atom 51:Atom 52:Atom  
53:Atom 54:Atom  
55:Atom 56:Atom 57:Atom 58:Atom

L1 STRUCTURE UPLOADED  
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L3 6 L2  
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L3 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2009:1137090 CAPLUS Full-text  
DOCUMENT NUMBER: 151:369649  
TITLE: Organic electroluminescent device and its manufacturing method  
INVENTOR(S): Goto, Yasuyuki; Nando, Koji; Kakinoki, Izumi; Uda, Akifumi; Matsushio, Takari  
PATENT ASSIGNEE(S): Kyushu Electric Power Co., Ltd., Japan; Daiden Co., Ltd.  
SOURCE: Jpn. Kokai Tokkyo Koho, 26pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:  
PATENT NO. KIND DATE APPLICATION NO. DATE  
JP 2009212238 A 20090917 JP 2008-52552 20080303  
PRIORITY APPLN. INFO.: JP 2008-52552 20080303  
OTHER SOURCE(S): MARPAT 151:369649  
AB The invention relates to an organic electroluminescent device, comprising a ZnO particle-dispersed organic layer containing phosphorus compound represented by Ar2(Ar1)PO(Ar3) [Ar1-Ar3 = aromatic residues], wherein the ZnO particle-dispersed organic layer is suited for use as an electron transport layer in order to realize a low voltage-driven device.  
IT 868520-12-1  
RL: TEM (Technical or engineered material use); USES (Uses)  
(organic electroluminescent device)  
RN 868520-12-1 CAPLUS  
CN Phosphine oxide, tris[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)





L3 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:1119967 CAPLUS ~~Full-text~~  
DOCUMENT NUMBER: 147:436473  
TITLE: Organic-inorganic composite semiconductor material, liquid material, organic light emitting element, method of manufacturing organic light emitting element, light emitting device and electronic apparatus  
INVENTOR(S): Makiura, Rie; Okuyama, Tomoyuki; Kawase, Takeo; Noto, Mitsuharu; Hayashida, Tsuyoshi; Goto, Yasuyuki  
PATENT ASSIGNEE(S): Seiko Epson Corporation, Japan; Dyden Corporation; Kyushu Electric Power Company, Incorporated  
SOURCE: U.S. Pat. Appl. Publ., 28pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

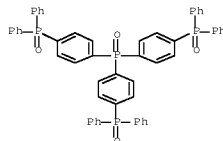
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070228356	A1	20071004	US 2007-691832	20070327
JP 2007281039	A	20071025	JP 2006-102556	20060403
JP 4273132	B2	20090603		
CN 101055924	A	20071017	CN 2007-10092166	20070402
KR 2007099474	A	20071009	KR 2007-32795	20070403
JP 2009135510	A	20090618	JP 2008-335500	20081227
			JP 2006-102556	A 20060403

PRIORITY APPLN. INFO.:  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 147:436473  
AB Organic-inorg. composite semiconductor material including material mainly made of at least one kind of a metal ion selected from an alkali metal ion, an alkali earth metal ion and a rare-earth metal ion, and a chemical compound represented by the following general formula (Ar1)(Ar2)(Ar3)P=O, where Ar1, Ar2 and Ar3 are each independently an aromatic ring group that optionally has a substituent group is described. An organic light emitting element comprising an electron transport film comprising the organic-inorg. composite material is also described. A liquid material comprising a metal compound and the organic-inorg. composite material is also described. A method of fabricating the organic light-emitting element is also described.

IT 868520-12-1  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron transport layer; organic-inorg. composite semiconductor material, liquid material, organic light emitting element, method of

manufacturing  
organic light emitting element)  
RN 868520-12-1 CAPLUS  
CN Phosphine oxide, tris[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)



L3 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:1170949 CAPLUS ~~Full-text~~  
DOCUMENT NUMBER: 143:449039  
TITLE: Organic compound containing phosphorus used in organic electroluminescent device and its preparation  
INVENTOR(S): Goto, Yasuyuki; Noto, Mitsuharu; Hayashida, Tsuyoshi; Era, Masanao  
PATENT ASSIGNEE(S): Kyushu Electric Power Co., Inc., Japan; Daiden Co., Ltd.  
SOURCE: FCT Int. Appl., 83 pp.  
CODEN: FIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

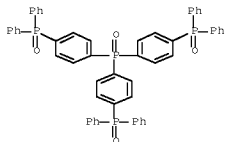
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005104628	A1	20051103	WO 2005-JP7551	20050420
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RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1744598	A1	20070117	EP 2005-734415	20050420
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
CN 1951156	A	20070418	CN 2005-80011649	20050420
CN 100512586	C	20090708		
KR 2007015545	A	20070205	KR 2006-721477	20061017
US 20070290605	A1	20071220	US 2007-599334	20070628

PRIORITY APPLN. INFO.:  
JP 2004-124712 A 20040420  
WO 2005-JP7551 W 20050420  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 143:449039  
AB The invention relates to an organic electroluminescent device provided with a plurality of organic compound layers sandwiched between an anode and a cathode. The organic electroluminescent device is provided with a hole transporting layer composed of an organic compound insol. in alc. solvents, and an electron transporting layer formed on the hole transporting layer by a wet method. The material of the electron transporting layer is an organic compound which contains phosphorus and soluble in alc. solvents. A method for manufacturing the organic electroluminescent element, the organic compound containing phosphorus and a method for manufacturing such compound are also provided.

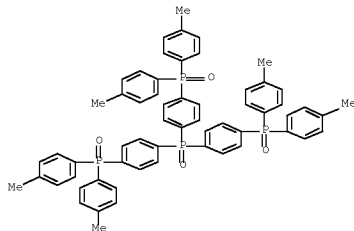
IT 868520-13-1P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(organic compound containing phosphorus used in organic electroluminescent device and its preparation)

RN 868520-12-1 CAPLUS  
CN Phosphine oxide, tris[4-(diphenylphosphinyl)phenyl]- (CA INDEX NAME)

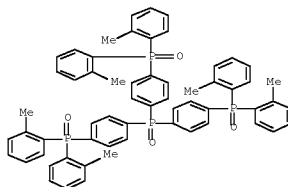


IT 868520-13-2P 868520-14-3E 868520-16-5P  
868520-17-6P 868520-21-2E 868520-22-3E  
868520-24-5P 868520-26-7P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(organic compound containing phosphorus used in organic electroluminescent device and its preparation)

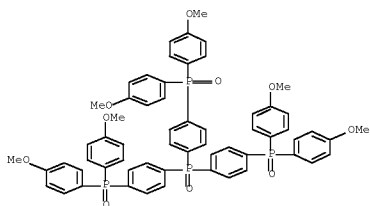
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CN Phosphine oxide, tris[4-[bis(4-methylphenyl)phosphinyl]phenyl]- (9CI) (CA INDEX NAME)



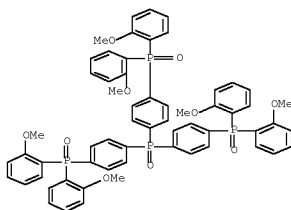
RN 868520-14-3 CAPLUS  
CN Phosphine oxide, tris[4-[bis(4-methylphenyl)phosphinyl]phenyl]- (CA INDEX NAME)



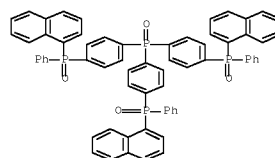
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CN Phosphine oxide, tris[4-[bis(4-methoxyphenyl)phosphinyl]phenyl]- (9CI) (CA INDEX NAME)



RN 868520-17-6 CAPLUS  
CN Phosphine oxide, tris[4-[bis(2-methoxyphenyl)phosphinyl]phenyl]- (9CI) (CA INDEX NAME)

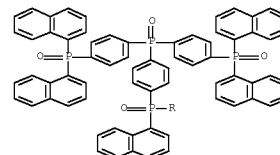


RN 868520-21-2 CAPLUS  
CN Phosphine oxide, [4-[bis[4-(1-naphthalenylphenylphosphinyl)phenyl]phosphinyl]phenyl]-1-naphthalenylphenyl- (CA INDEX NAME)



RN 868520-22-3 CAPLUS  
CN Phosphine oxide, tris[4-(di-1-naphthalenylphosphinyl)phenyl]- (9CI) (CA INDEX NAME)

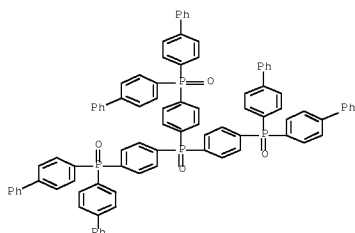
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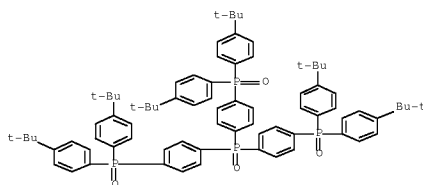
PAGE 2-A



RN 868520-24-5 CAPLUS  
CN Phosphine oxide, tris[4-[bis([1,1'-biphenyl]-4-yl)phosphinyl]phenyl]- (9CI) (CA INDEX NAME)



RN 868520-26-7 CAPLUS  
CN Phosphine oxide, tris[4-[bis[4-(1,1-dimethylethyl)phenyl]phosphinyl]phenyl]- (9CI) (CA INDEX NAME)

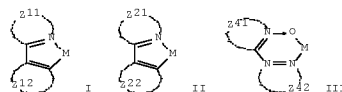


OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2004:739385 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 141:268179  
TITLE: Long-life white-emitting organic electroluminescent devices, displays, illumination apparatus, and electric appliances therewith  
INVENTOR(S): Fukuda, Mitsuhiro; Genda, Kazuo  
PATENT ASSIGNEE(S): Konica Minolta Holdings, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 577 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1

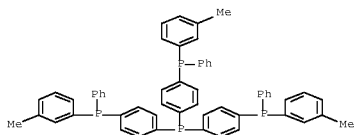
# PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004253298	A	20040909	JP 2003-43860	20030221
JP 2009055053	A	20090312	JP 2008-262504	20081009
PRIORITY APPLN. INFO.:			JP 2003-43860	A3 20030221
OTHER SOURCE(S):		MARPAT 141:268179		
GI				



AB The devices have, in their constituent layers (e.g., emitting layers, hole- or electron-transporting layers), (i) compds. represented by X1R1C:CR2X2 [X1, X2 = aryl, heterocycle; R1, R2 = aryl, heterocyclic hydrocarbyl, cycloalkoxy (R1 = R2 = aryl)], R11R12R13R14R15P (R11-R15 = monovalent substituent), Ar2Ar1C6H4(m-Ar1Ar2) [Ar1 = bivalent aromatic hydrocarbylene; Ar2 = (substituted) Ph; H atom on the benzene ring may be substituted with (cyclo)alkyl, alkoxy, or halo], Z(ArQ)n [Q = (substituted) o-(2-pyridyl)phenyl; Z = n-valent bridging group, single bond; Ar = bivalent arylene; n = 2-8], etc., (ii) fluorescent compds. with mol. weight 500-2000 and atomic ratio F/(F + H) 0-0.9 and having fluorescent peak at 415 nm, (iii) polysilanes (R21R22Si)n [R21, R22 = alkyl(oxy), aromatic group, aryloxy; n1 23] or [R31(Ar31NR32R33)Si]n [R31 = alkyl(oxy), aromatic group, aryloxy; R32, R33 = alkyl, aromatic group; Ar31 = arylene; n2 23], and/or (iv) fluorescent compds. satisfying atomic ratio N/C 0-0.05. The devices, having phosphorescent dopants I (211 = aromatic azacycle; 212 = nonarom. ring, 5-membered aromatic ring, azulene; M = metal), II (221, 222 = aromatic azacycle; M = metal), or III (241 = azacycle; 242 = ring; M = metal) in emitting layers, are also claimed. The devices exhibit high luminescent efficiency and substantially white emission, and are suited for light source uses, especially of LCD.

IT 620630-59-3  
RL: DEV (Device component use); USES (Uses) (long-life white-emitting organic LED containing azacyclic phosphorescent dopants and showing high luminescent efficiency)  
RN 620630-59-3 CAPLUS  
CN Phosphine, tris[4-[(3-methylphenyl)phenylphosphino]phenyl]- (CA INDEX NAME)



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)

L3 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2003:872566 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 139:371624  
TITLE: Organic electroluminescent display device comprising phosphorus compound  
INVENTOR(S): Matsuura, Mitsunobu; Yamada, Taketoshi; Kita, Hiroshi  
PATENT ASSIGNEE(S): Konica Minolta Holdings Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003317965	A	20031107	JP 2002-123819	20020425
JP 4103442	B2	20080618		
JP 2007329494	A	20071220	JP 2007-197216	20070730
JP 4129599	B2	20080806		
JP 2007329495	A	20071220	JP 2007-197217	20070730
JP 4183016	B2	20081119		

PRIORITY APPLN. INFO.: JP 2002-123819 A3 20020425

OTHER SOURCE(S): MARPAT 139:371624

AB The invention refers to an organic electroluminescent display device comprising a pentavalent or trivalent P.

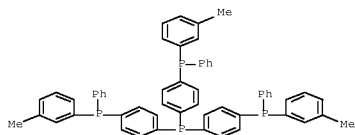
IT 620630-59-3

RL: DEV (Device component use); USES (Uses)

(organic electroluminescent display device with phosphorus compound)

RN 620630-59-3 CAPLUS

CN Phosphine, tris[4-[(3-methylphenyl)phenylphosphino]phenyl]- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L3 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1996:625330 CAPLUS [Full-text](#)  
DOCUMENT NUMBER: 125:291557  
ORIGINAL REFERENCE NO.: 125:54231a,54234a  
TITLE: Synthesis and Characterization of Palladium(II) and Platinum(II) Complexes Containing Water-Soluble Hybrid Phosphine-Phosphonate Ligands  
AUTHOR(S): Schull, Terence L.; Fettingner, James C.; Knight, D. Andrew  
CORPORATE SOURCE: Department of Chemistry, George Washington University, Washington, DC, 20052, USA  
SOURCE: Inorganic Chemistry (1996), 35(23), 6717-6723  
CODEN: INOCAJ; ISSN: 0020-1669  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Water soluble phosphonate-functionalized triarylphosphine ligands Na<sub>2</sub>[Ph<sub>2</sub>P(4-C<sub>6</sub>H<sub>4</sub>PO<sub>3</sub>)]·1.5H<sub>2</sub>O (4a), Na<sub>2</sub>[Ph<sub>2</sub>P(3-C<sub>6</sub>H<sub>4</sub>PO<sub>3</sub>)]·2H<sub>2</sub>O (4b), and Na<sub>2</sub>[Ph<sub>2</sub>P(2-C<sub>6</sub>H<sub>4</sub>PO<sub>3</sub>)]·2H<sub>2</sub>O (4c), were prepared in 54-56% yields by the transesterification and hydrolysis of the appropriate phosphonic acid di-Et ester precursors. The solubilities of 4a-c in H<sub>2</sub>O are compared and the spectroscopic properties studied. The crystal structure of Na<sub>2</sub>[Ph<sub>2</sub>P(4-C<sub>6</sub>H<sub>4</sub>PO<sub>3</sub>)](H<sub>2</sub>O)<sub>3</sub>(MeOH)·MeOH (monoclinic, space group P2<sub>1</sub>/n, a 6.4457(8), b 8.1226(8), c 46.351(3) Å, β 92.902(8)°, Z = 4) shows a dimeric association via two bridging H<sub>2</sub>O mols. and four Na ions. Reaction of 4a with PtCl<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub> in a biphasic H<sub>2</sub>O/CH<sub>2</sub>Cl<sub>2</sub> mixture gives cis- and trans-Na<sub>4</sub>[PtCl<sub>2</sub>(Ph<sub>2</sub>P(4-C<sub>6</sub>H<sub>4</sub>PO<sub>3</sub>))<sub>2</sub>]·3H<sub>2</sub>O. Pd dichloride and 4a in H<sub>2</sub>O/benzene catalyzes the carbonylation of benzyl chloride to give phenylacetic acid (91%).

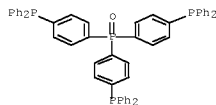
IT 182625-41-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

RN 182625-41-8 CAPLUS

CN Phosphine oxide, tris[4-(diphenylphosphino)phenyl]- (9CI) (CA INDEX NAME)



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L2 11 SEA FILE=REGISTRY SSS FUL L1

FILE 'CAPLUS' ENTERED AT 10:48:21 ON 22 JUL 2010

L3 6 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L2

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